346

PROPERTY OF
[illegible]KENSHIP,
[illegible]DE ST.
DENVER, COLORADO

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L. F. BLANKENSHIP
3321 MEADE ST.
DENVER, COLORADO

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 3 IN SET 292

CBS-COLUMBIA MODELS U23C39, U23C39B, U23C49L, U23T19, U23T19B, 23C39, 23C39B, 23T19, 23T19B (Ch. 921-93, 921-94)

CBS-Columbia Models 23C49L, 23C49LB, 23C49S, 23C49SM, 23C59 and 23C59B (Ch. 921-94) were covered in Photofact Folder 3 — Set 292.

Models 23C39, 23C39B, 23T19, 23T19B (Ch. 921-94), U23C39, U23C39B, U23C49L, U23T19 and U23T19B (Ch. 921-93) are electrically identical to models covered except for the following changes.

COMPONENT CHANGE

A .02MFD capacitor is added from the junction of R23 and C37 to the junction of C39, C40, R26 and R28.

NEW TUNERS

Chassis 921-93 uses UHF-VHF tuner #6900061l. A schematic of this tuner is given in Fig. 1.

Chassis 921-94 may use one of the following tuners, #69000201, 69000591, 69000661.

A schematic of tuner #69000201 is given in Fig. 2.

A schematic of tuner #69000591 is given in Fig. 3.

Tuner #69000661 is electrically identical to the VHF section of tuner #6900061l shown in Fig. 1, except for the following changes.

The 150K resistor from contact #13 of the mixer-oscillator coil strip is omitted.

The UHF power socket is omitted.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 5 IN SET 278

MAGNAVOX CHASSIS CMUA435CB, CMUA436CB, CMUA437CB, CMUA438CB, CTA435CB, CTA436CB, CTA437CB, CTA438CB (250 Series)

Magnavox Chassis CMUA435AA, CMUA436AA, CTA435AA and CTA436AA (250 Series) were covered in Photofact Folder 5 — Set 278.

Magnavox Chassis CMUA435BB, CMUA436BB, CMUA437BB, CMUA438BB, CTA435BB, CTA436BB, CTA437BB and CTA438BB (250 Series) were covered in Production Change Bulletin 168 — Set 331-1.

Chassis CMUA435CB, CMUA436CB, CMUA437CB, CMUA438CB, CTA435CB, CTA436CB, CTA437CB and CTA438CB (250 Series) are electrically identical to the BB chassis covered in Production Change Bulletin 168 - Set 331-1, except for the following changes.

COMPONENT CHANGES

V4, 1st. video IF, and V5, 2nd. video IF, are changed from 6CB6 to 6BZ6.

V1, RF Amp., is changed from 6BQ7A to 6BC8.

R45 is omitted.

C49 is increased from 470MMF to 3900MMF.

C57 is increased from 5000MMF to 10000MMF.

R42 is decreased from 5600Ω to 4700Ω.

R92 is decreased from 3900Ω to 1300Ω.

R3, brightness control, is increased from 100 K to 200K, part #220129-11.

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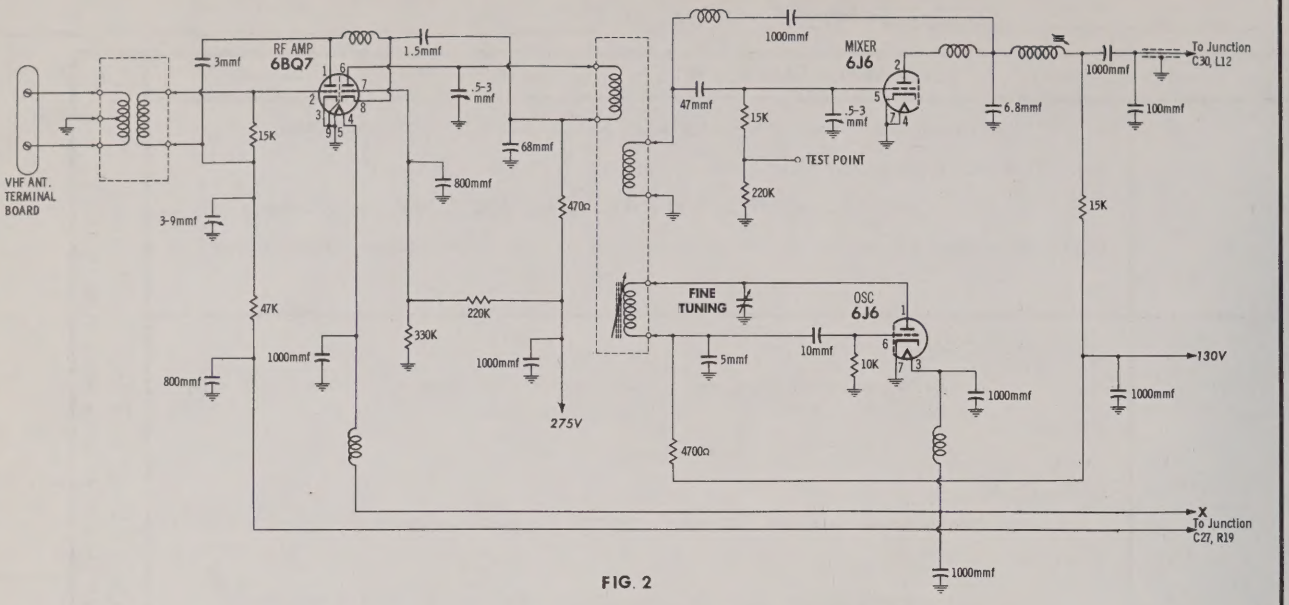
VHF ANT. TERMINAL BOARD
3mmf
RF AMP 6BQ7
1.5mmf
.5-3 mmf
68mmf
800mmf
470Ω
15K
3-9mmf
47K
1000mmf
800mmf
220K
330K
1000mmf
275V
1000mmf
MIXER 6J6
47mmf
15K
.5-3 mmf
TEST POINT
220K
6.8mmf
1000mmf
100mmf
To Junction C30, L12
15K
FINE TUNING
OSC 6J6
5mmf
10mmf
10K
1000mmf
130V
1000mf
4700Ω
X
To Junction C27, R19
1000mmf

FIG. 2

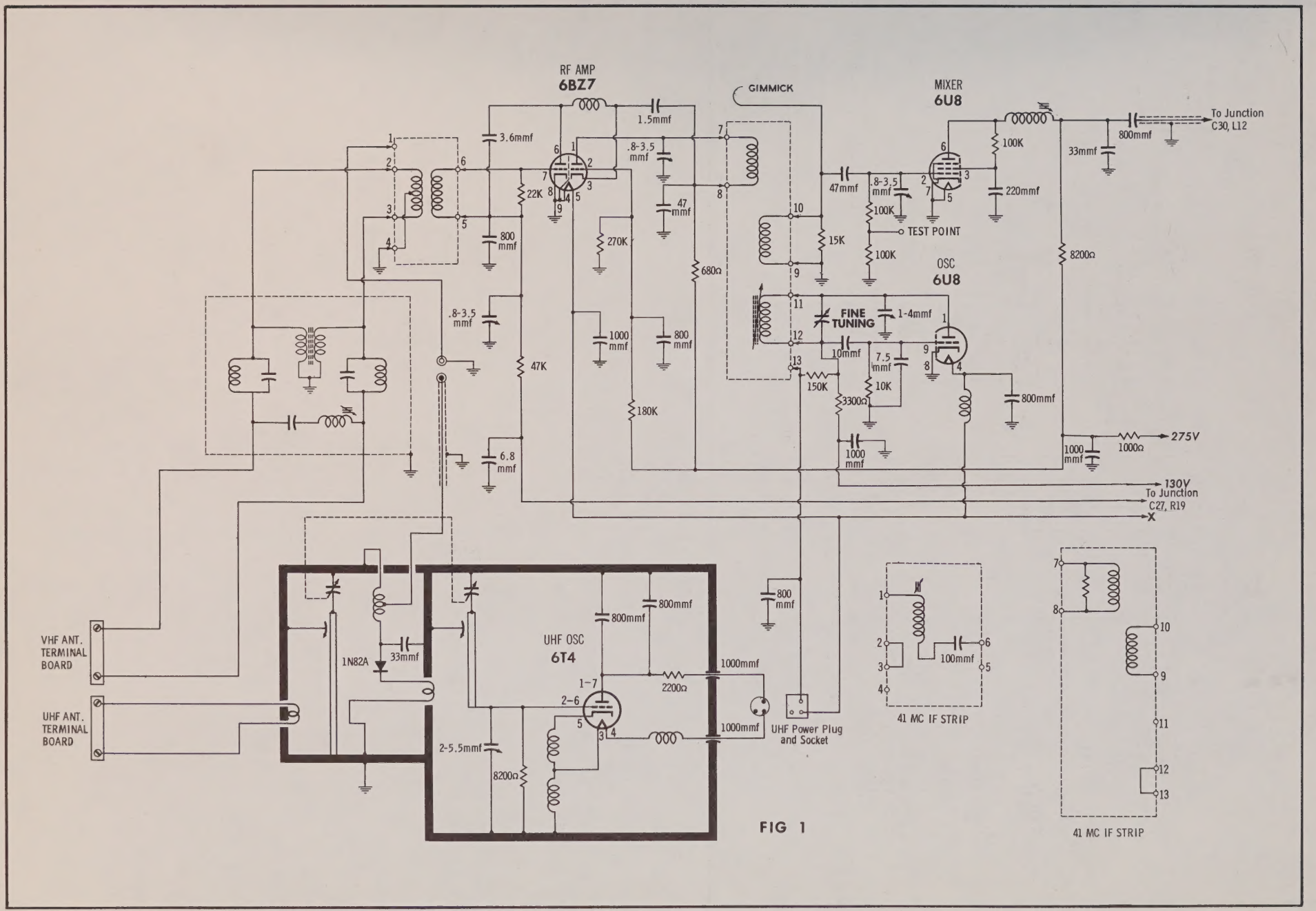
RF AMP
6BZ7
GIMMICK
MIXER
6U8
OSC
6U8
To Junction
C30, L12
3.6mmf
1.5mmf
.8-3.5
mmf
47mmf
100K
33mmf
800mmf
220mmf
22K
800
mmf
270K
680Ω
47
mmf
15K
100K
TEST POINT
8200Ω
FINE
TUNING
1-4mmf
10mmf
7.5
mmf
10K
150K
3300Ω
800mmf
1000
mmf
1000Ω
275V
180K
47K
6.8
mmf
130V
To Junction
C27, R19
X
VHF ANT.
TERMINAL
BOARD
UHF ANT.
TERMINAL
BOARD
1N82A
33mmf
UHF OSC
6T4
2200Ω
2-5.5mmf
8200Ω
UHF Power Plug
and Socket
100mmf
41 MC IF STRIP
41 MC IF STRIP

FIG 1

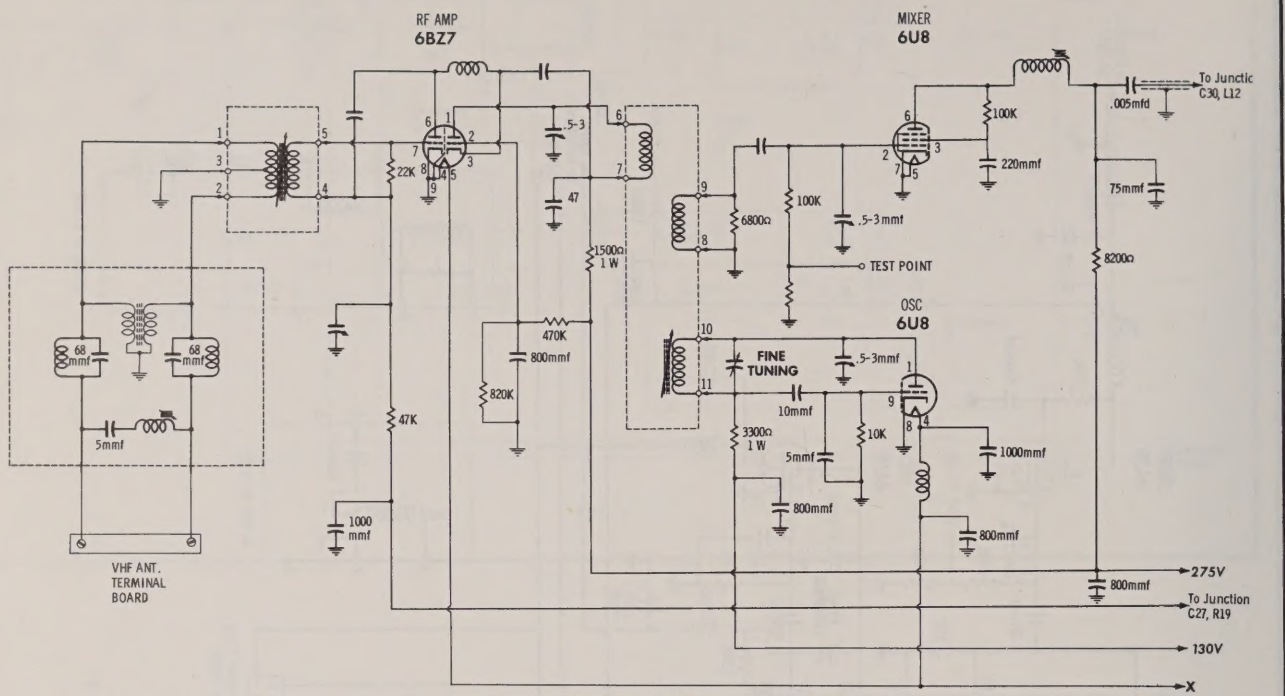
RF AMP
6BZ7
MIXER
6U8
OSC
6U8
To Junctic
C30, L12
.005mfd
100K
220mmf
75mmf
8200Ω
6800Ω
100K
.5-3mmf
TEST POINT
1500Ω
1 W
.5-3
47
470K
800mmf
820K
47K
1000
mmf
68
mmf
68
mmf
5mmf
VHF ANT.
TERMINAL
BOARD
FINE
TUNING
5-3mmf
10mmf
3300Ω
1 W
5mmf
10K
1000mmf
800mmf
800mmf
800mmf
275V
To Junction
C27, R19
130V
X

FIG. 3

RETMA MEMBER

ADMIRAL CHASSIS 4G2, 4G2A

PROPERTY OF
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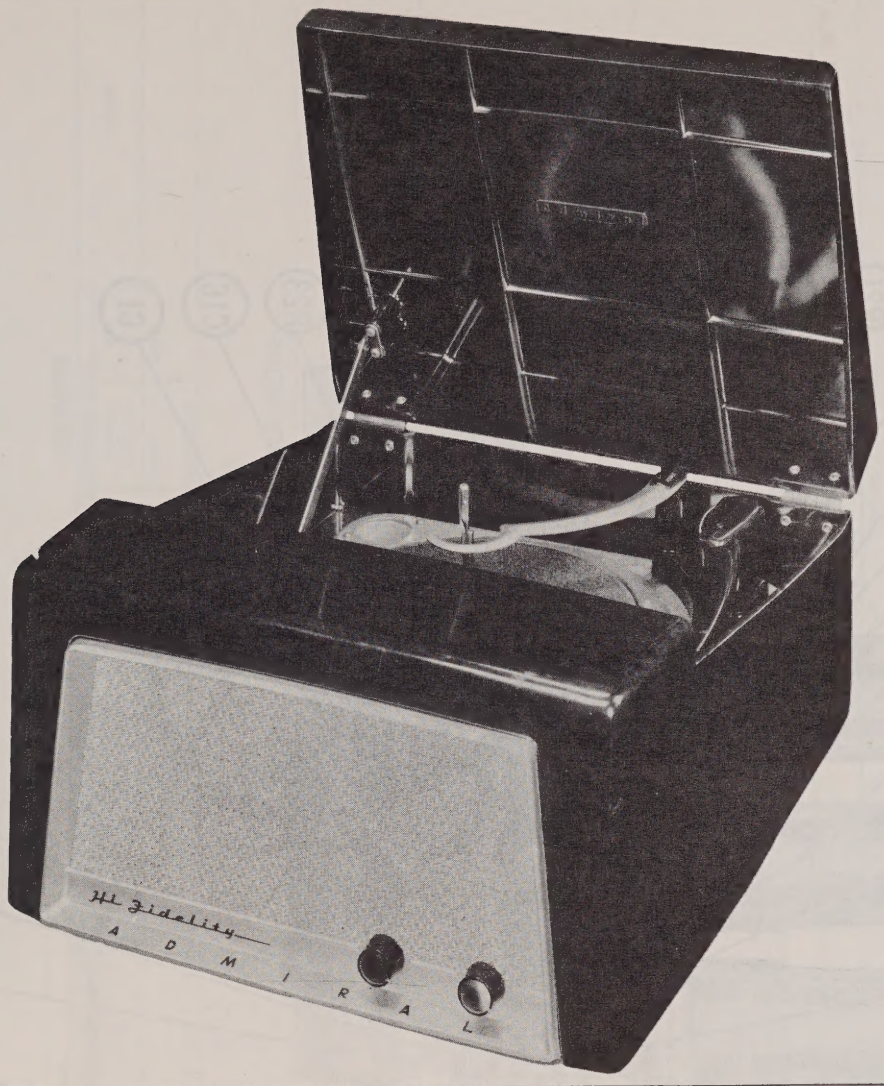
DENVER, COLORADO

ADMIRAL CHASSIS 4G2, 4G2A



ADMIRAL CHASSIS 4G2, 4G2A

TRADE NAME	Admiral Models HP2235, HP2238, 4G22D (Ch. 4G2), 4D18D, 4D28D (Ch. 4G2A)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Ill.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Four)	Types 12AX7 AF Amplifier, 35L6GT Output-Phase Inv., 35L6GT Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC- 60 Cycles RATING .29 Amp. @ 117 Volts AC

RECORD CHANGER UNIT	USED IN MODEL
RC664	4G22D
RC654	4D28D
RC664	4D18D
RC646 (or) RC646-1	HP2235 & HP2238

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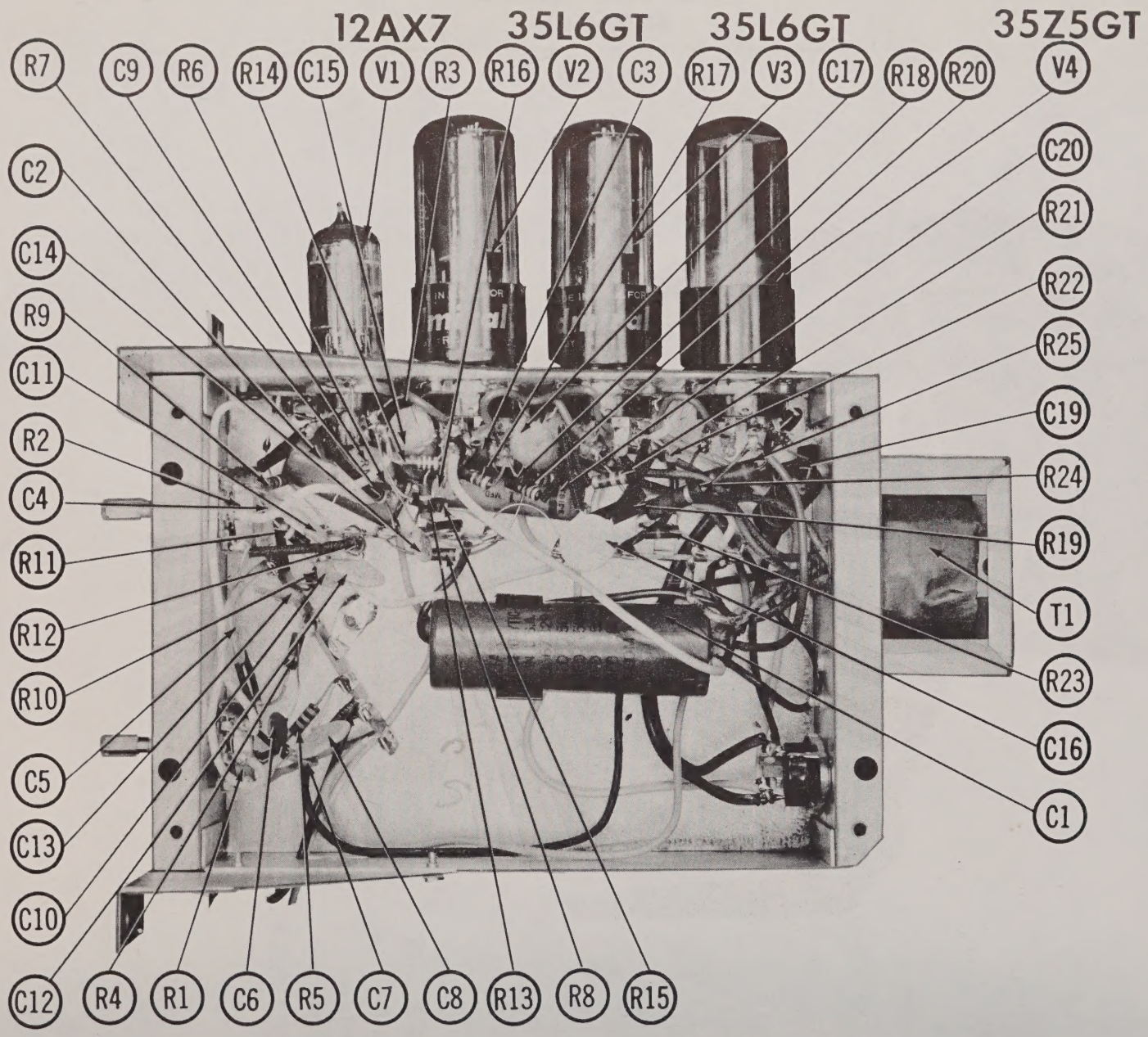


CHASSIS-BOTTOM VIEW

ADMIRAL
MODEL HP2235

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	Output-Phase Inverter	35L6GT	
V3	Output	35L6GT	
V4	Rectifier	35Z5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	67B29-3	PR4-125	BBRT44415	TCT3115	TDLT-5	FMT-1540	TVA-3451
B	40	150			BR415	TC40	TD-4-150	FM-1504	TVA-1402
C	4	150							
D	40	150							
C2	10	25	67A4-12	PRS25V10	BR102	TC22	TD-10-25	FM-0210	TVA-1204

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.1	200	64B8-7	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C4	10000		65C10-3	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C5	75		65C6-70	SI75	D6-750	G039	GP1K-750	UC-5475	5GA-Q75	
C6	1500		65C10-4	DI-0015	DD-152	G071	811-152	UC-5215	5GA-D15	
C7	35		65C6-10	N750-DI33	TCN-33	N030	N750K-330		5TCU-Q33	
C8	10000		65C10-3	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C9	10000		65C10-3	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C10	47		65C6-79	N750-DI47	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C11	1000		65C6-92	DI-001	DD-102	G069	811-102	DC521	5GA-D1	
C12	2200		65C10-42	DI-0022	D6-222	K073	811-0022	UC-5222	5GA-D22	
C13	1000		65C6-92	DI-001	DD-102	G069	811-102	DC521	5GA-D1	
C14	475		65D10-81	BPD-00047	DD-471	G060	811-471	UC-5347	5GA-T47	
C15	.047	200	65B8-9	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C16	5000		65C10-1	BPD-005	DD-502	K080	811-005	DC525	5HK-D5	
C17	.047	200	65B8-9	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C18	4	10	65B13-1							
C19	.047	400	65A13-5	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C20	.1	200	64B8-7	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	3Meg		75B3-7					Loudness Tap @ 900K & 2Meg
R2A	1Meg		75C1-71	AB-69	A47-1Meg-S	Q11-137	U54	Tone
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R2A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	NOTES
R3	330K		60B8-334	BTS-330K	
R4	150K		60B8-154	BTS-150K	
R5	33K		60B8-333	BTS-33K	
R6	470K		60B8-474	BTS-470K	
R7	4700Ω		60B8-472	BTS-4700	
R8	4700Ω		60B8-472	BTS-4700	
R9	560K		60B8-564	BTS-560K	
R10	560K		60B8-564	BTS-560K	
R11	100K		60B8-104	BTS-100K	
R12	100K		60B8-104	BTS-100K	
R13	10K		60B8-103	BTS-10K	
R14	330K 5%		60B8-334	BTS-330K 5%	
R15	4700Ω		60B8-472	BTS-4700	
R16	10K	1	60B15-103	BTA-10K	
R17	470K		60B8-474	BTS-470K	
R18	470K		60B8-474	BTS-470K	
R19	100Ω	1	60B14-101	BTA-100	
R20	43K 5%		60B7-433	BTS-43K 5%	
R21	3300Ω		60B8-332	BTS-3300	
R22	47K		60B8-473	BTS-47K	
R23	10K		60B8-103	BTS-10K	
R24	220Ω	1	60B14-221	BTA-220	
R25	12Ω	1	60B14-120	BTA-12	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	5000Ω	3-4Ω	79C57-1						

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA ADMIRAL PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	8" (or) 12"	PM	3-4Ω	78B92-1	8A21	208S2	
SP2	3½"	PM	3-4Ω	78B91-1	3A15TZ3.2		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ADMIRAL PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1	409B20	55-T	GD-J	47	0-1 or S-1 and 0-3	

ASTATIC AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

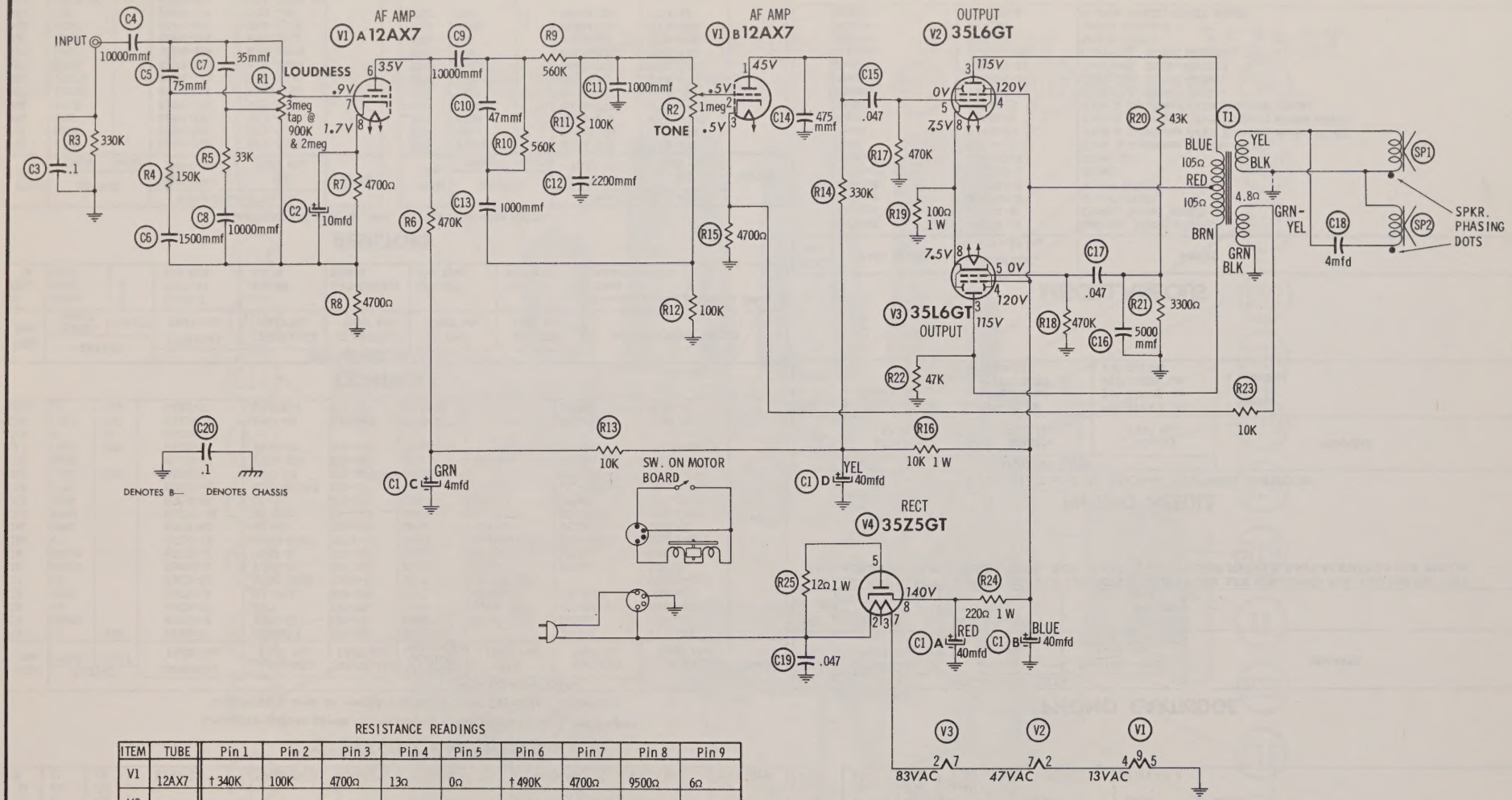
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ADMIRAL PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	†98B15-43 or ♦98B15-45	*JP-36 or †JPS-36 or ♦†JPS-36SD or ♦JPS-36D	*W-33TPA or †W-33TPS or ♦†W-33DS or ♦W-33TPD	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
	Cabinet	34E63-14	Bottom, Model 4G22D.
	Cabinet	34E63-6	Cover, Model 4G22D.
	Cabinet	35E309-3	Model 4D18D.
	Cabinet	35E309-2	Model 4D28D.
	Cabinet	35E382-1	Brown
	Cabinet	35E382-2	Silver Oak
	Knob	33B81-12	Tone & Loudness, Model 4G22D.
	Knob	33B81-10	Tone & Loudness (With Pointer) Model 4D18D.
	Knob	33B81-11	Tone & Loudness (With Pointer) Model 4D28D.
	Knob	33B81-18	Tone & Loudness (With Pointer) White
	Handle	35E309-58	Carrying, Model 4D18D.
	Handle	35E309-62	Carrying, Model 4D28D.
	Handle	35E382-58	Carrying, Model HP2235.
	Handle	35E382-60	Carrying, Model HP2238.
	Motor	407C23	Model RC646
	Motor	407C24	Model RC646-1
	Motor	407C23-2	Models 4G22D, 4D18D, 4D28D.

ADMIRAL MODEL HP2235



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†340K	100K	4700Ω	13Ω	0Ω	†490K	4700Ω	9500Ω	6Ω
V2	35L6GT	TP	13Ω	†325Ω	†220Ω	470K	TP	47Ω	100Ω	
V3	35L6GT	TP	83Ω	†325Ω	†220Ω	470K	TP	47Ω	100Ω	
V4	35Z5GT	NC	115Ω	NC	NC	130Ω	NC	83Ω	20K	

ALL MEASUREMENTS TAKEN WITH PHONO MOTOR DISCONNECTED.
† MEASURED FROM PIN 8 OF V4.
NC NO CONNECTION
TP TIE POINT

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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BROCINER
MODEL Mark 30C

BROCINER
MODEL Mark 30C

BROCINER
MODEL Mark 30C

TRADE NAME	Brociner Model Mark 30C
MANUFACTURER	Brociner Electronics Corp., 344 E. 32nd. St., New York 16, N.Y.
TYPE SET	AC Operated 6 Channel Equalizer Preamplifier
TUBES (Three)	Types 12AX7 Phono Preamplifier, 12AX7 AF Amplifier, 12AX7 AF Amplifier
POWER SUPPLY	105-125 Volts AC-50/60 Cycle RATING .16 Amp. @ 117 Volts AC

PROPERTY OF

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PARTS LIST AND DESCRIPTIONS

BROCINER
MODEL Mark 30C

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AX7	Note 1
V2	AF Amplifier	12AX7	Note 1
V3	AF Amplifier	12AX7	Note 1

Note 1. Type 12AD7 or ECC83 may be used in some versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BROCINER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	10	450			BBRD2245	TCD75	TDLD-28	FMD-4520	TVA-2730
B	20	450			BR1045	TC72	TD-10-450	FM-4510	TVA-1705
C	20	450							
C2A	20	450			BBRD2245	TCD75	TDLD-28	FMD-4520	TVA-2730
B	20	450			BR505	TC39	TD-50-50	FM-0550	TVA-1308
C	50	50							

FIXED CAPACITORS

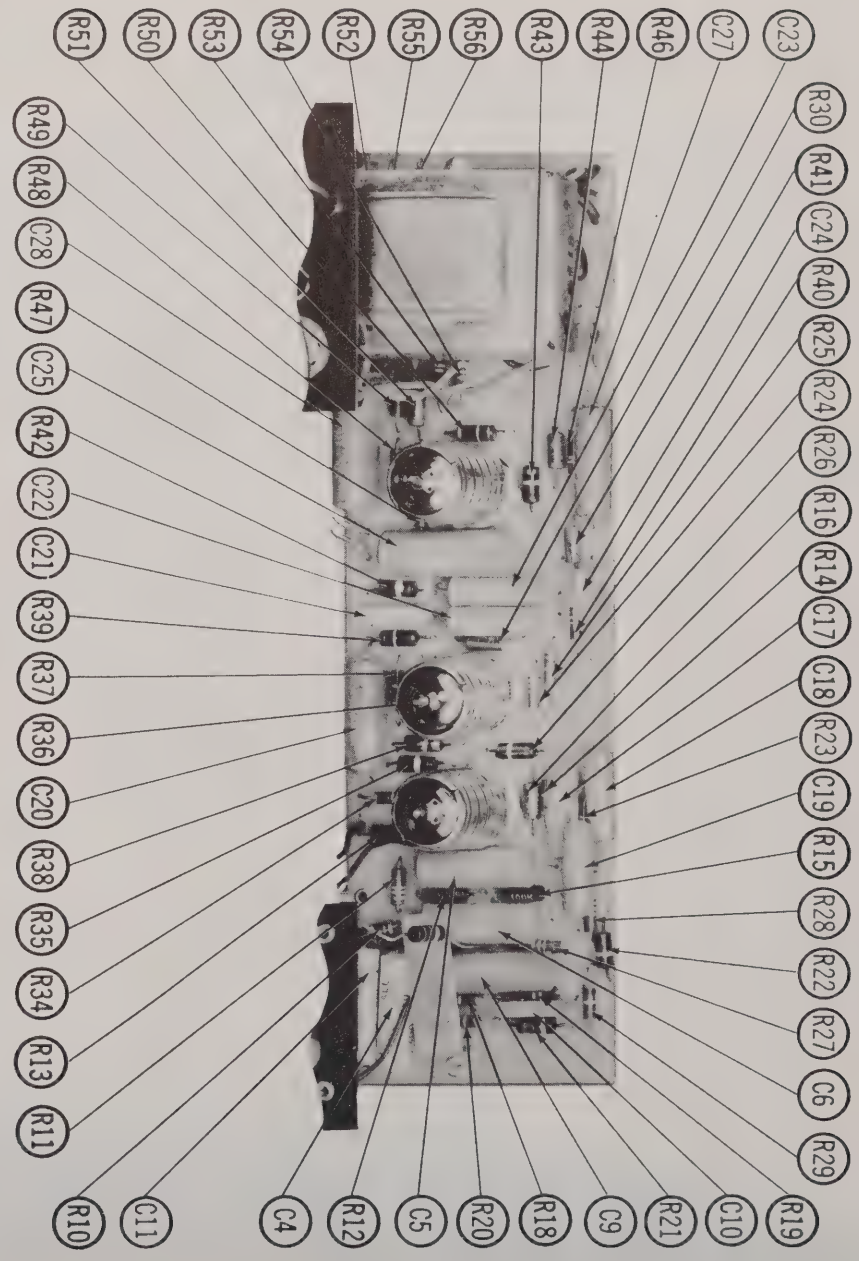
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA BROCINER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	220	500		1468-00022	D6-221	5W5T22	GP-220	MCK322	MS-322	
C4	.02	400		BPD-02	DF-203	CUB4S2	ED-02	GEM-412	4TM-S2	
C5	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C6	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C7	.01	400		BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C8	.01	400		BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C9	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C10	25	500		1468-000025	D6-250	5W5Q25	GP-25	MC220	MS-425	
C11	.02	400		BPD-02	DF-203	CUB4S2	ED-02	GEM-412	4TM-S2	
C12	220	500		1468-00022	D6-221	5W5T22	GP-220	MCK322	MS-322	
C13	220	500		1468-00022	D6-221	5W5T22	GP-220	MCK322	MS-322	
C14	220	500		1468-00022	D6-221	5W5T22	GP-220	MCK322	MS-322	
C15	330	500		1468-00033	D6-331	5W5T33	GP-330	MCK333	MS-333	
C16	330	500		1468-00033	D6-331	5W5T33	GP-330	MCK333	MS-333	
C17	.01	400		BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C18	.01	400		BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C19	.0047	400		BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C20	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C21	100	500		1468-0001	D6-101	5W5T1	GP-100	MC235	MS-31	
C22	.0047	400		BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C23	.0047	400		BPD-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C24	100	500		1468-0001	D6-101	5W5T1	GP-100	MC235	MS-31	
C25	.1	400		P488N-I	DF-104	CUB4P1		GEM-401	4TM-P1	
C26	220	500		1468-00022	D6-221	5W5T22	GP-220	MCK322	MS-322	
C27	.03	400		BPD-03	DF-303	CUB6S3		GEM-413	4TM-S3	
C28	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C29	.02	400		BPD-02	DF-203	CUB4S2	ED-02	GEM-412	4TM-S2	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA BROCINER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	1142A2-1	B-60-S	A47-500K-Z	Q13-133	U48	Volume - Tap ⓐ 50K
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	Not Req.	SWE-12	76-1	US-26	Attach to R1A
R2A	500K	½	1142A2-2	BT-65	A47-500K-S	Q11-133	U50	Treble - Tap ⓐ 250K
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	1Meg	½	1142A2-3	B-69	A47-1Meg-S	Q11-137	U54	Bass
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	100K	½	1143A2-2	AB-40	A47-100K-S	Q11-128	U41	Termination
B	Shaft		Not Req.	AK-1	FKS-1/4	RQ	Not Req.	Attach to R4A
R5A	250K	½	1143A2-3	AB-51	A47-250K-Z	Q13-130	U44	Phono Level
B	Shaft		Not Req.	AK-1	FKS-1/4	RQ	Not Req.	Attach to R5A
R6A	250K	½	1143A2-3	AB-51	A47-250K-Z	Q13-130	U44	Tape Level
B	Shaft		Not Req.	AK-1	FKS-1/4	RQ	Not Req.	Attach to R6A
R7A	250K	½	1143A2-3	AB-51	A47-250K-Z	Q13-130	U44	Radio Level
B	Shaft		Not Req.	AK-1	FKS-1/4	RQ	Not Req.	Attach to R7A
R8A	500Ω	½	1143A2-1	AB-4	A47-500-S	Q11-103	U2	Signal/Noise
B	Shaft		Not Req.	AK-1	FKS-1/4	RQ	Not Req.	Attach to R8A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BROCINER PART No.	IRC PART No.	
R9	27K			BTS-27K	
R10	4.7Meg			BTS-4.7Meg	
R11	27K			BTS-27K	
R12	100K				Note 1
R13	1600Ω				Note 1
R14	1Meg			BTS-1Meg	
R15	100K				Note 1
R16	1600Ω				Note 1
R17	62K			BTS-62K	
R18	1Meg			BTS-1Meg	
R19	220K			BTS-220K	
R20	10K			BTS-10K	
R21	62K			BTS-62K	
R22	100K			BTS-100K	
R23	1Meg			BTS-1Meg	
R24	330K			BTS-330K	
R25	4.7Meg			BTS-4.7Meg	
R26	100K			BTS-100K	
R27	27K			BTS-27K	
R28	330K			BTS-330K	
R29	1Meg			BTS-1Meg	
R30	1600Ω			BTS-1600	
R31	47K			BTS-47K	
R32	220K			BTS-220K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BROCINER PART No.	IRC PART No.	
R33	100K			BTS-100K	
R34	1Meg			BTS-1Meg	
R35	100K			BTS-100K	
R36	1600Ω			BTS-1600	
R37	1Meg			BTS-1Meg	
R38	100K			BTS-100K	
R39	100K			BTS-100K	
R40	470K			BTS-470K	
R41	1600Ω			BTS-1600	
R42	100K			BTS-100K	
R43	100K			BTS-100K	
R44	1600Ω			BTS-1600	
R45	330K			BTS-330K	
R46	22K			BTS-22K	
R47	220K			BTS-220K	
R48	560K			BTS-560K	
R49	1Meg			BTS-1Meg	
R50	100K			BTS-100K	
R51	1600Ω			BTS-1600	
R52	22K			BTS-22K	
R53	27K			BTS-27K	
R54	220K			BTS-220K	
R55	22K			BTS-22K	
R56	4700Ω			BTS-4700	

Note 1. Low noise resistor

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	BROCINER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ②.16A	255VAC ②.0065A	6.3VAC ②.15A		1119A	P9101 ①②		PS8416①②		

① Tape center tap on secondary.
② Use original frame and shield.

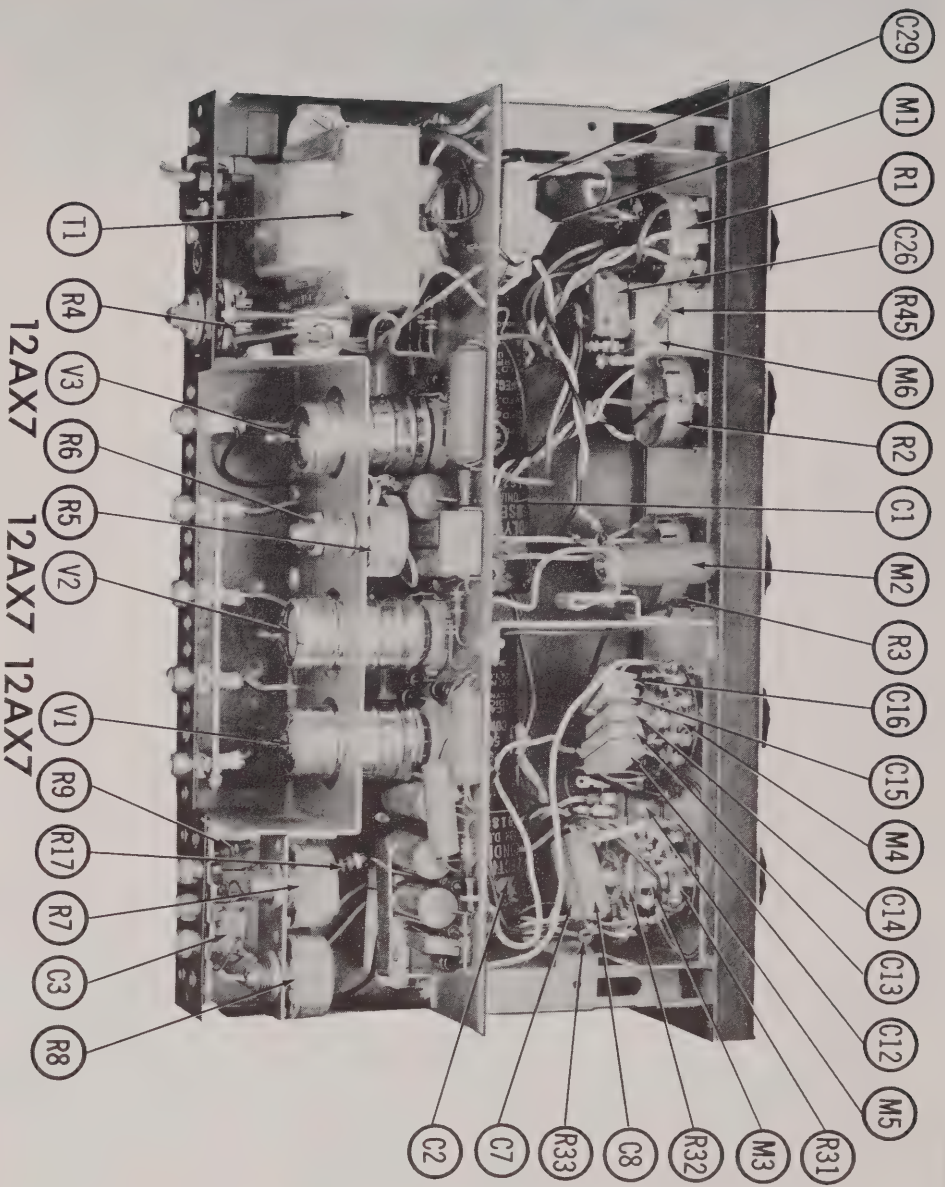
SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	BROCINER PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.0065A			V15HP		17Y1		

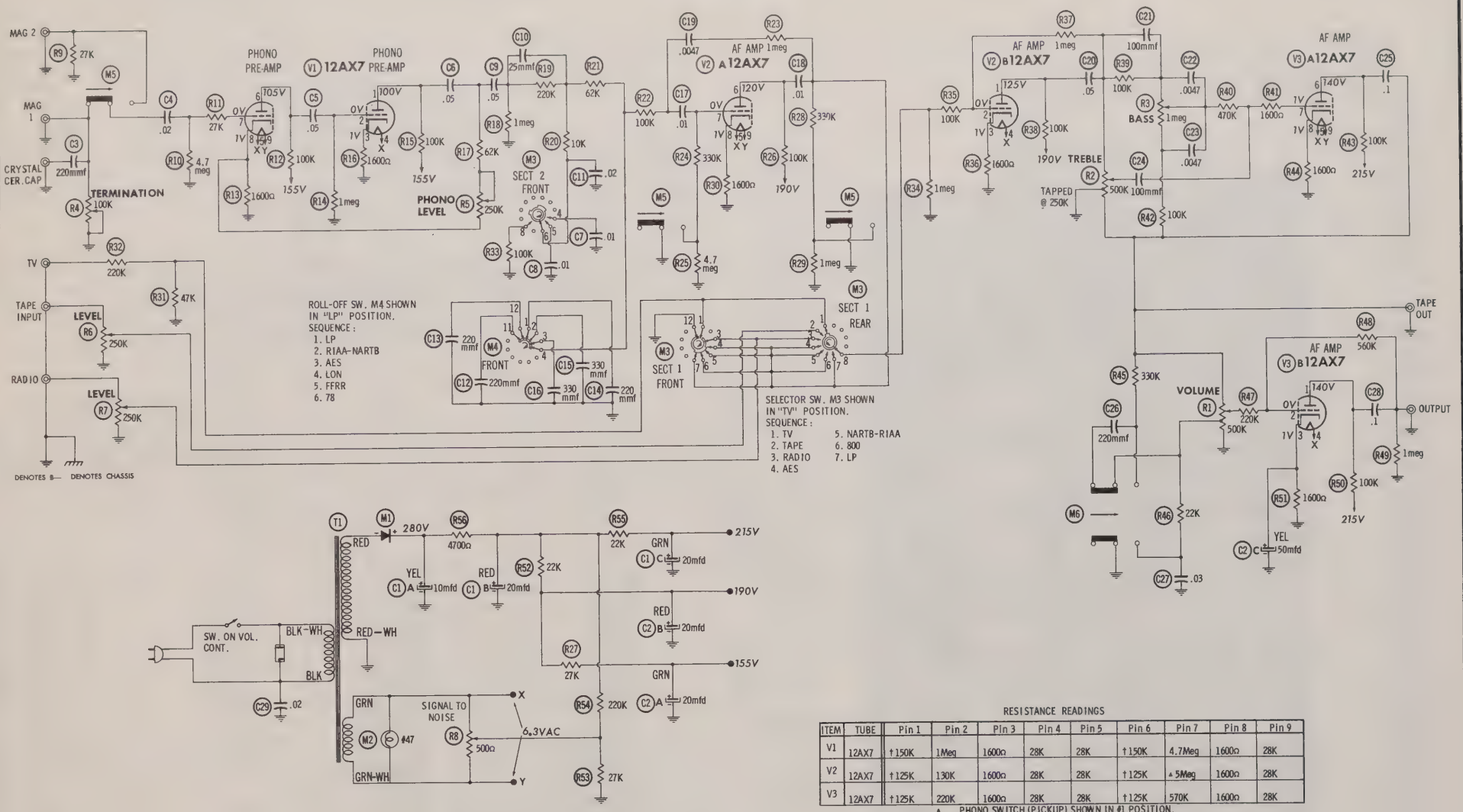
MISCELLANEOUS

ITEM No.	PART NAME	BROCINER PART No.	NOTES
M2	Lamp		#47
M3	Switch	1140A1	Selector, 2 gang wafer type
M4	Switch	1141A1	Roll off, wafer type
M5	Switch	SS8	Phono, Slide type, DPDT
M6	Switch	SS3	Loudness, Slide type, DPDT

CHASSIS—BOTTOM VIEW



BROCINER MODEL Mark 30C



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†150K	1Meg	1600Ω	28K	28K	†150K	4.7Meg	1600Ω	28K
V2	12AX7	†125K	130K	1600Ω	28K	28K	†125K	▲5Meg	1600Ω	28K
V3	12AX7	†125K	220K	1600Ω	28K	28K	†125K	570K	1600Ω	28K

▲ PHONO SWITCH (PICKUP) SHOWN IN #1 POSITION.
† MEASURED FROM OUTPUT OF M1.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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BUICK
MODEL 981708

TRADE NAME	Buick Model 981708 (For 1956 Buick Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Ind.
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Manual & Signal Seeking Tuning
TUBES (Eight)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12AU6 IF Amplifier, 12BF6 Det.-AVC-AF Amp., (2) 12V6GT Output, 12AU7 Trigger, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery RATING 3.5 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	550KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Tone control to "Treble".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400∿Mod)	High freq. end stop (See Remarks)	DC probe to ungrounded side of C2. Common to chassis.	A1, A2, A3	Insert 0.070" feeler gauge (or bare #13 wire) in slot against high freq. end stop. Allow planetary arm to run against feeler gauge by depressing station selector bar. Switch radio off, then on again. Adjust A1, A2 and A3 for maximum deflection.
2.	"	"	"	"	"	A4	Adjust for MINIMUM deflection.
3.	82MMF	High side thru 82 MMF to antenna receptacle. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check setting of oscillator core (A8). Rear of core should be 1 25/32" from mounting end of coil form. If necessary, make this adjustment and reseal core. Adjust A5, A6 and A7 for maximum deflection.
4.	"	"	600KC	Tune to 600KC signal	"	A9, A10	Adjust for maximum deflection.
5.	"	"	1615KC	Tune to 1615KC signal	"	A6, A7	Adjust for maximum deflection.
6.	"	"	1000KC	Tune to 1000KC signal	"		If necessary, set pointer to 1000KC on dial scale with dial pointer adjustment screw.

With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, adjust A7 for maximum volume.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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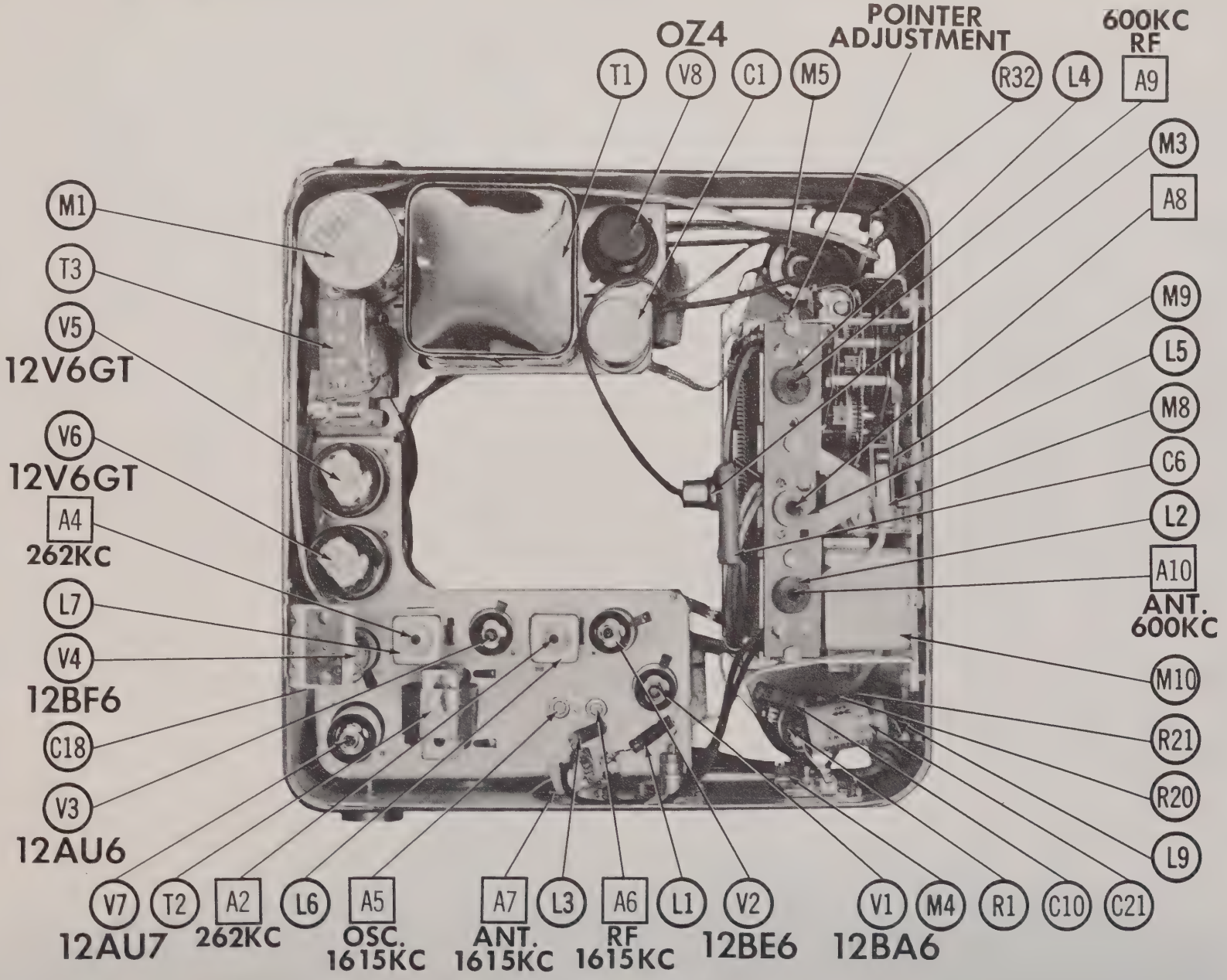


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12AU6	
V4	Det.-AVC-AF Amplifier	12BF6	

ITEM No.	USE	TYPE	NOTES
V5	Output	12V6GT	
V6	Output	12V6GT	
V7	Trigger	12AU7	
V8	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C5A	▪20	400	6522	AFHS-120	CO990	FPS45.8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

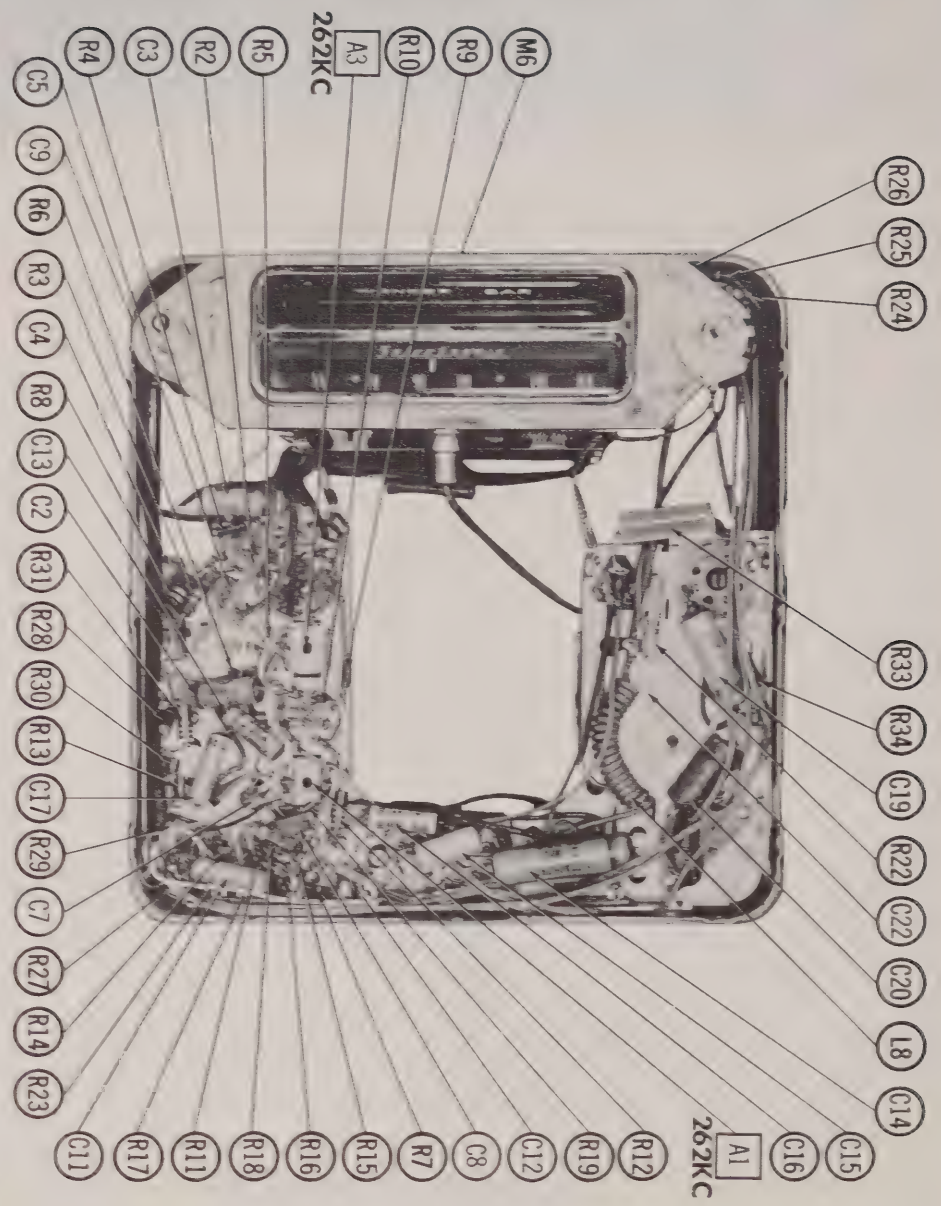
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.05	200	6512	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C3	.05	200	6512	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C4	.1	400	6515	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C5A	68		G-680	NP0-SI68	TCZ-68	Z038	TCO-68		5TCC-Q68	Note 1
B	39		6366	NP0-SI39	TCZ-39	Z031	TCO-39		5TCC-Q39	Note 1
C6	250		T266596							
C7	100	500	1219495	NP0-DI 100	TCZ-100	22R5T1	TCO-100	MCE255	MS-S1	
C8	100	500	1219496	NP0-DI 100	TCZ-100	22R5T1	TCO-100	MCE235	MS-S1	
C9	300		T231178	N750-DI 300	TCN-300	N050	TC7-200		5TCU-T2	
C10	.004	600	6530	BPD-004	D6-402	CUB6D4	GP-4000	GEM-624	6TM-D4	
C11	.005	600	6531	BPD-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C12	220	500	G-221	SI220	D6-222	5W5T22	GP-220	UC-5322	1FM-S22	
C13	.01	400	6354	BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C14	.2	400	6514	P488N-2		CUB4P22		GEM-402	4TM-P2	
C15	.025	400	1211232	P488N-025		CUB4S25		GEM-4125	4TM-S25	
C16	.004	600	6564	P1088N-004	DDI6-402	CUB16D4		GEM-1024	10TM-D4	
C17	.002	600	6526	BPD-002	D6-202	CUB6D2	GP-2000	GEM-6D2	6TM-D2	
C18	120	500	G-121	NP0-SI 120	D6-121	5W5T12	GP-120	UC-5312	1FM-T12	
C19	.007	1600	6567	P1688N-007	DDI6-702	CUB16D7		GEM-1627	MB-D7	
C20	.47	100	6592	VHC-36		ST2P5		RF480	68P20	
C21	.5	100	6592	VHC-36		ST2P5		RF480	68P20	
C22			127845							

Note 1. C5A and C5B may be single items in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	200K	½	7266996				UE1372S	Tone (Panel)
B	1Meg	½	Not Req.				Not Req.	Volume (Rear) Tap @ 200K
C	Switch		Not Req.				Not Req.	Attach to R1B

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R2	2.2Meg		1239	BTS-2.2Meg	
R3	10K	1		BTA-10K	Note 1
R4	100Ω		1113	BTS-100	
R5	330K		1229	BTS-330K	
R6	22K		1215	BTS-22K	
R7	1.5Meg		1237	BTS-1.5Meg	
R8	12K	2	1276	BTB-12K	
R9	10Ω		1101	BTS-10	
R10	270Ω		1118	BTS-270	
R11	1Meg		1235	BTS-1Meg	
R12	47K	1	1259	BTA-47K	
R13	1000Ω 5%		1220176	BTS-1000 5%	
R14	3300Ω 5%		1220173	BTS-3300 5%	
R15	680K 5%		1220172	BTS-680K 5%	
R16	390K 5%		7267327	BTS-390K 5%	
R17	1Meg		1235	BTS-1Meg	
R18	1.5Meg 5%		1219492	BTS-1.5Meg 5%	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R19	47K		1219	BTS-47K	
R20	68K		1221	BTS-68K	
R21	820K		1234	BTS-820K	
R22	360Ω 5%	1	7234563	BW1-360	
R23	1000Ω 5%		1220176	BTS-1000	
R24	1000Ω		1125	BTS-1000	
R25	10K		1137	BTS-10K	
R26	100K		1223	BTS-100K	
R27	5.6Meg		1244	BTS-5.6Meg	
R28	47K	1	1220188	BTB-47K	
R29	120K		1224	BTS-120K	
R30	6800Ω 5%	1	7266367	BTA-6800 5%	
R31	47K 5%	1	1259	BTA-47K	
R32	12K	1	1252	BTA-12K	
R33	1800Ω	7	1204		Note 2
R34	15K	1	1253	BTA-15K	

Note 1. In some versions a 15K, 1W (part #1253) is used.
Note 2. Mfgr. states to replace with 2700Ω, 2W and 5600Ω, 1W in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VAC @2A	400VCT @.058A			6066				22R89	

TRANSFORMER (AUDIO INPUT)

ITEM No.	Resistance		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1800Ω		6061						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	7800Ω	3-4Ω	6063	Z1002	A-2936	A-3852	22887	S-15X	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6" x 9"	PM	3-4Ω	7264667	69A2	23851	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coupling Coil	7255738	19-1004		4610	7 Microhenries
L2	Ant. Coil	7257979				
L3	RF Coupling	7240251	19-6022		4626	28 Microhenries
L4	RF Coil	2257979				
L5	Osc. Coil	7263287				
L6	Input IF	1219508	16-6752	BC-350	12-H1	
L7	Output IF	1220204				
L8	Fil. Choke	1217846				1.4 Microhenries
L9	Fil. Choke	1217846				1.4 Microhenries

VIBRATOR

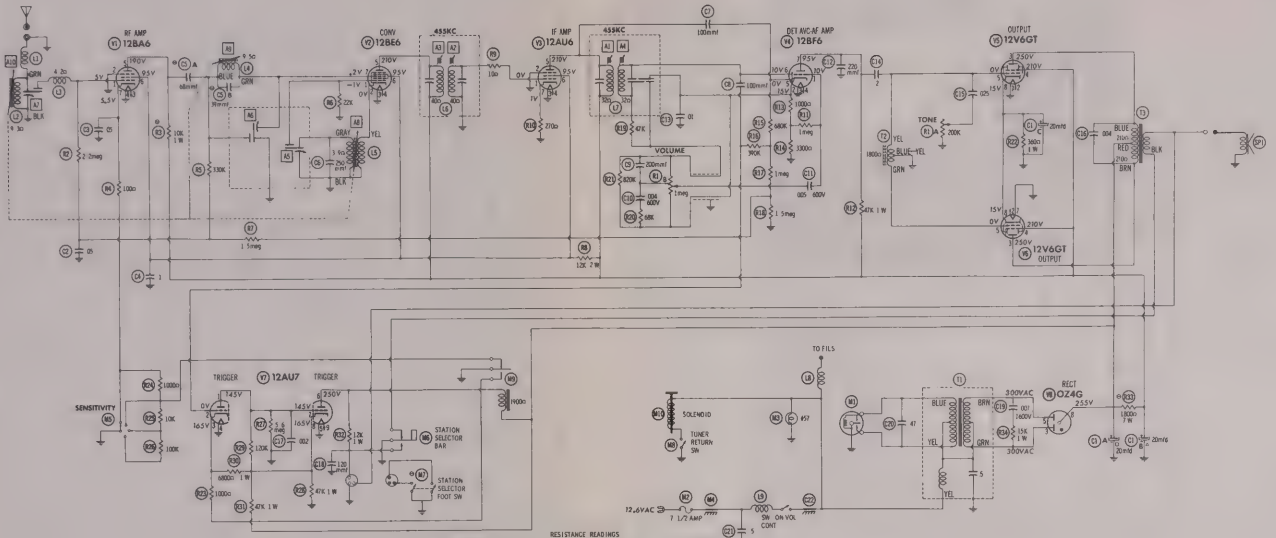
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115v	8550	6330	G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DELCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		7½A		1220177			SFE 7½	HRH

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Dial Light		#57
M4	Spark Plate	1219768	
M5	Switch	7266989	Sensitivity (SP- 4 position)
M6	Switch	7263345	Station selector
M7	Switch	7258903	Foot (Station selector)
M8	Switch	7263340	Tuner Return
M9	Relay	1220326	
M10	Solenoid	7267048	Includes plunger
M11	Trimmer Cap.	7242454	Dual: A5 (Osc.), A6 (RF)
A7	Trimmer Cap.	7266990	Antenna
	Knob	1170170	On -off-volume & tuning
	Knob	1170188	Sensitivity
	Knob	1170180	Tone
	Dial	7266793	



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BA6	5.2Meg	0Ω	2Ω	0Ω	†1.2K	†14K	100Ω	
V2	12BE6	22K	0Ω	0Ω	2Ω	†1800Ω	†14K	3.3Meg	
V3	12AU6	550	0Ω	0Ω	2Ω	†1800Ω	†14K	270Ω	
V4	12BF6	1Meg	430Ω	0Ω	2Ω	2.6Meg	2.6Meg	1.48K	
V5	12V6GT	NC	2Ω	†210Ω	†1800Ω	900Ω	NC	0Ω	360Ω
V6	12V6GT	NC	2Ω	†210Ω	†1800Ω	900Ω	NC	0Ω	360Ω
V7	12AU7	†160K	2.8Meg	60K	0Ω	2Ω	†1900Ω	160K	47K
V8	0Z4	0Ω	NC	†220Ω	NC	220Ω	NC	NC	90K

† MEASURED FROM PIN 8 OF V8
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohms per volt meter.
2. Normal conditions are shown as broken wave.
3. Ground connections are from socket pin to common negative.
4. Battery voltage measured at 12.6 volts for voltage readings.
5. Nominal tolerance on components is ±20% unless possible a variation of ±10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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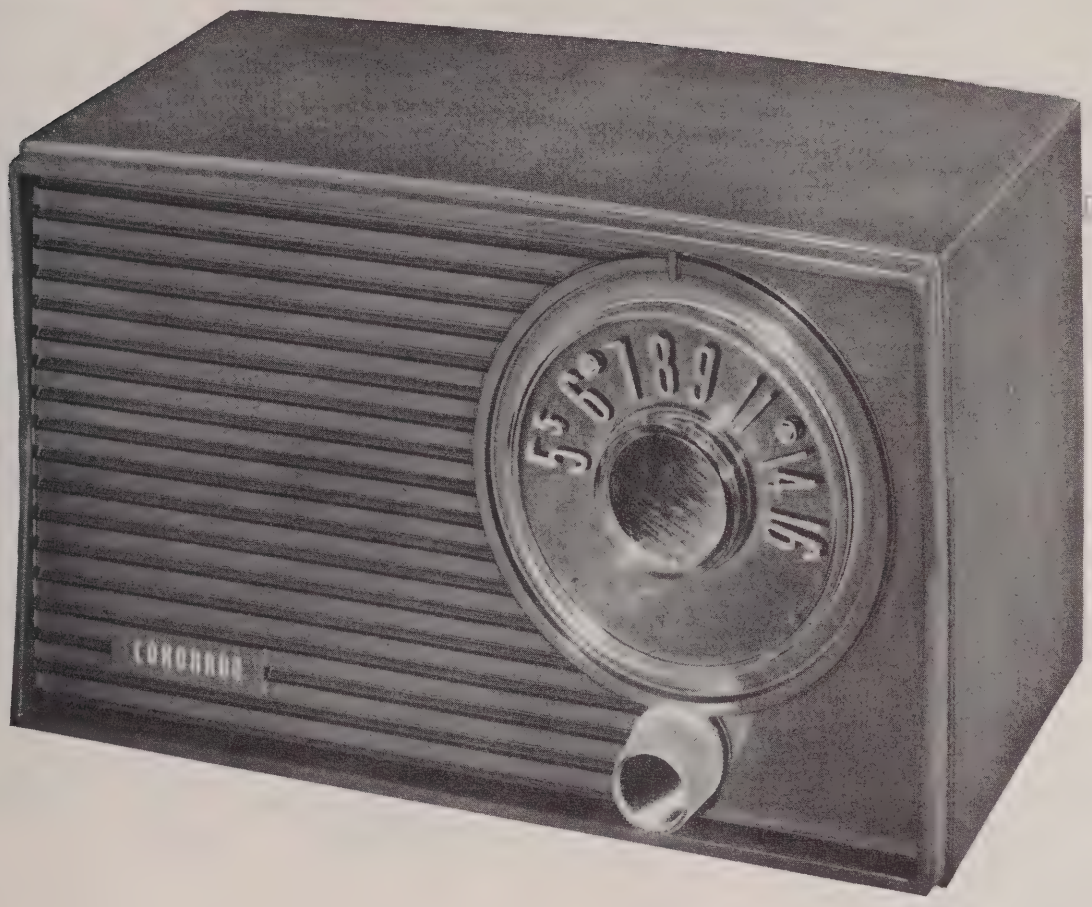
CORONADO
MODEL RA12-8121-A



CORONADO
MODEL RA12-8121-A

TRADE NAME	Coronado Model RA12-8121A
SUPPLIER	Gamble-Skogmo Inc., 15 N. 8th. St., Minneapolis, Minn.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Four)	Types 12AU6 Converter, 12AV6 Det.-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .24 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to antenna stator lug. Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A3	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

CORONADO
MODEL RA12-8121A

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	Detector-AF Amplifier	12AV6	
V3	Output	50C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	CORONADO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	R-1482	PRS150/25V 4020/20	BBRT4215C	TCT3114	TDLT-12	FMT-321	TVA-3423
B	20	150							
C	20	15							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100		N-6015	SI 100	D6-101	TP34	GP-100	UC-531	5GA-T1	
C3	56									
C4	56									
C5	10000		N-9062	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C6	.022	400	N-1461	BPD-02	DF-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C7	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	

CONTROLS

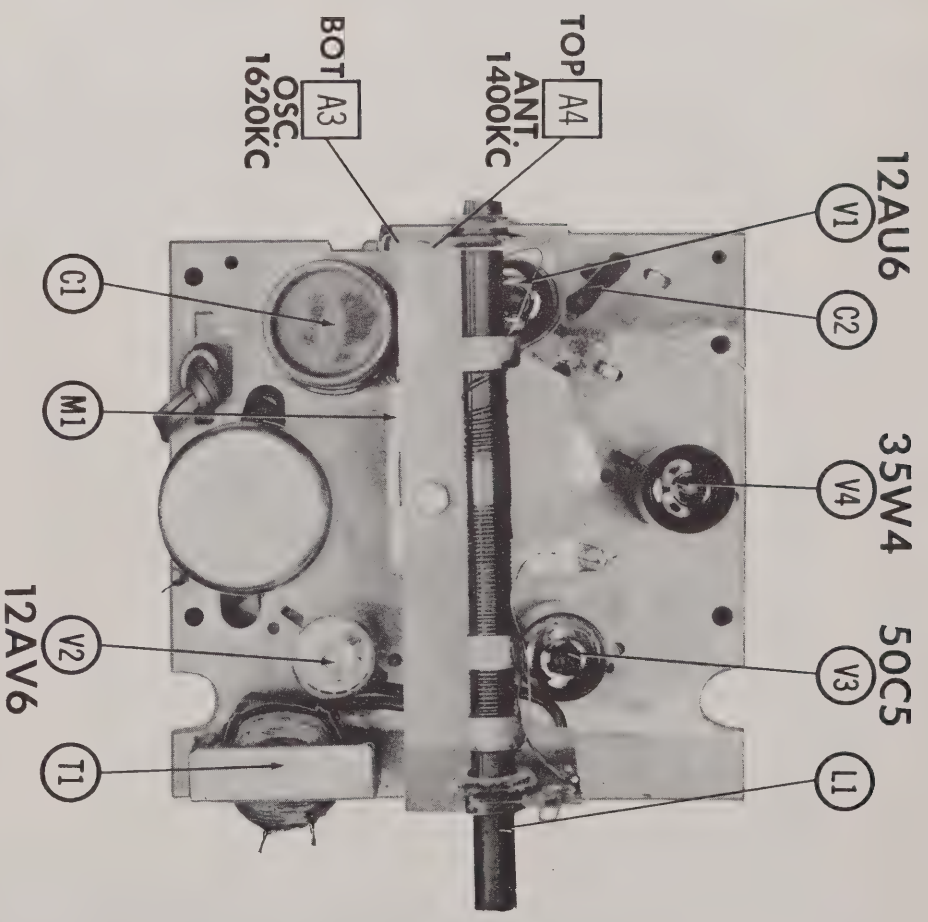
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2Meg	½	R-1455	AB-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	KB-1	SWE-12	76-1	US-26	Attach to R1A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CORONADO PART No.	IRC PART No.	
R2	2.7Meg		N-8027	BTS-2.7Meg	
R3	180Ω		N-4067	BTS-180	
R4	2200Ω		N-4896	BTS-2200	
R5	22Ω		N-5889	BTS-22	
R6	68Ω	2	R-1483		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3200Ω	3-4Ω	R-1480	Z1101	A-3025	A-3332	26S58	S-12X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	CORONADO PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	R-1478	4A07	22381	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		CORONADO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1 L2 L3	Loop Stick Osc. Coil IF Trans.	R-1811 R-1486 R-1484				

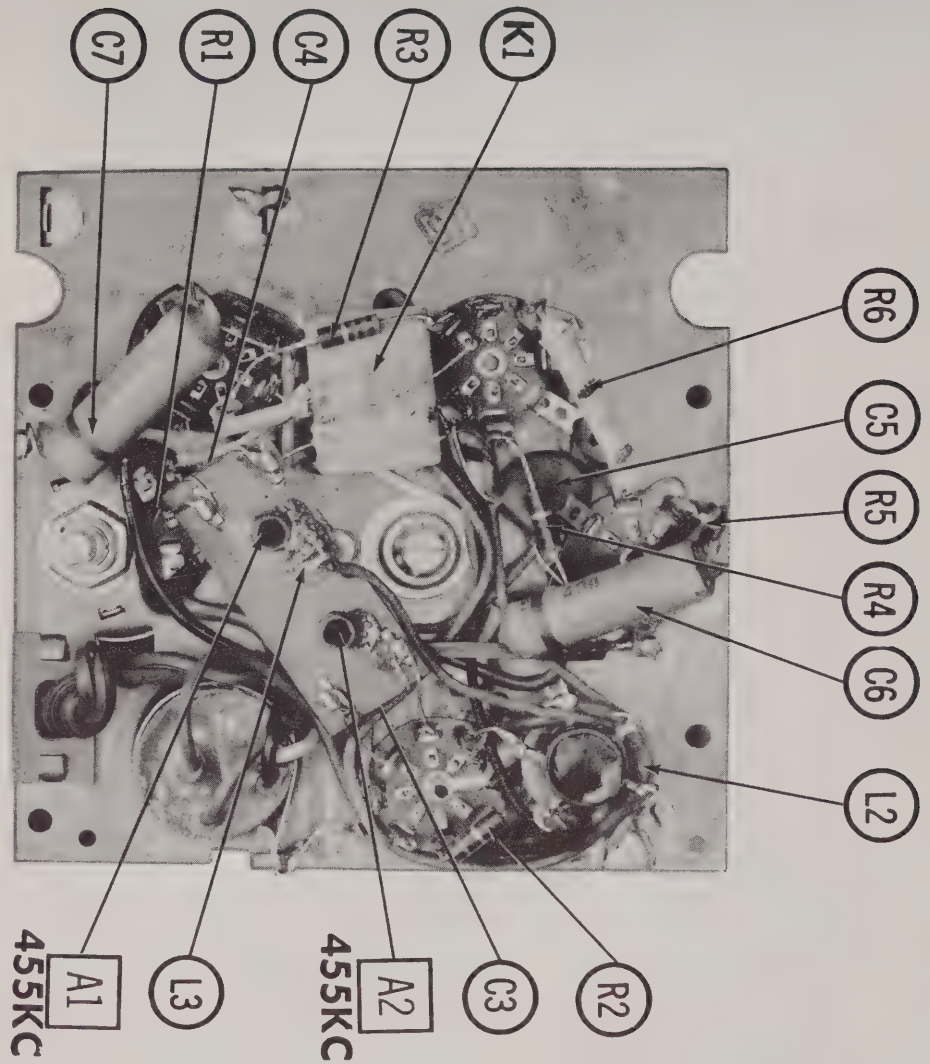
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA	
K1	Detector-Audio Circuit	5000MMF, 2000MMF, 220MMF, 250MMF, 6.8Meg, 470K, 470K	R-1487	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-113-1 PC-150 116TM1 1408-01 DT-1

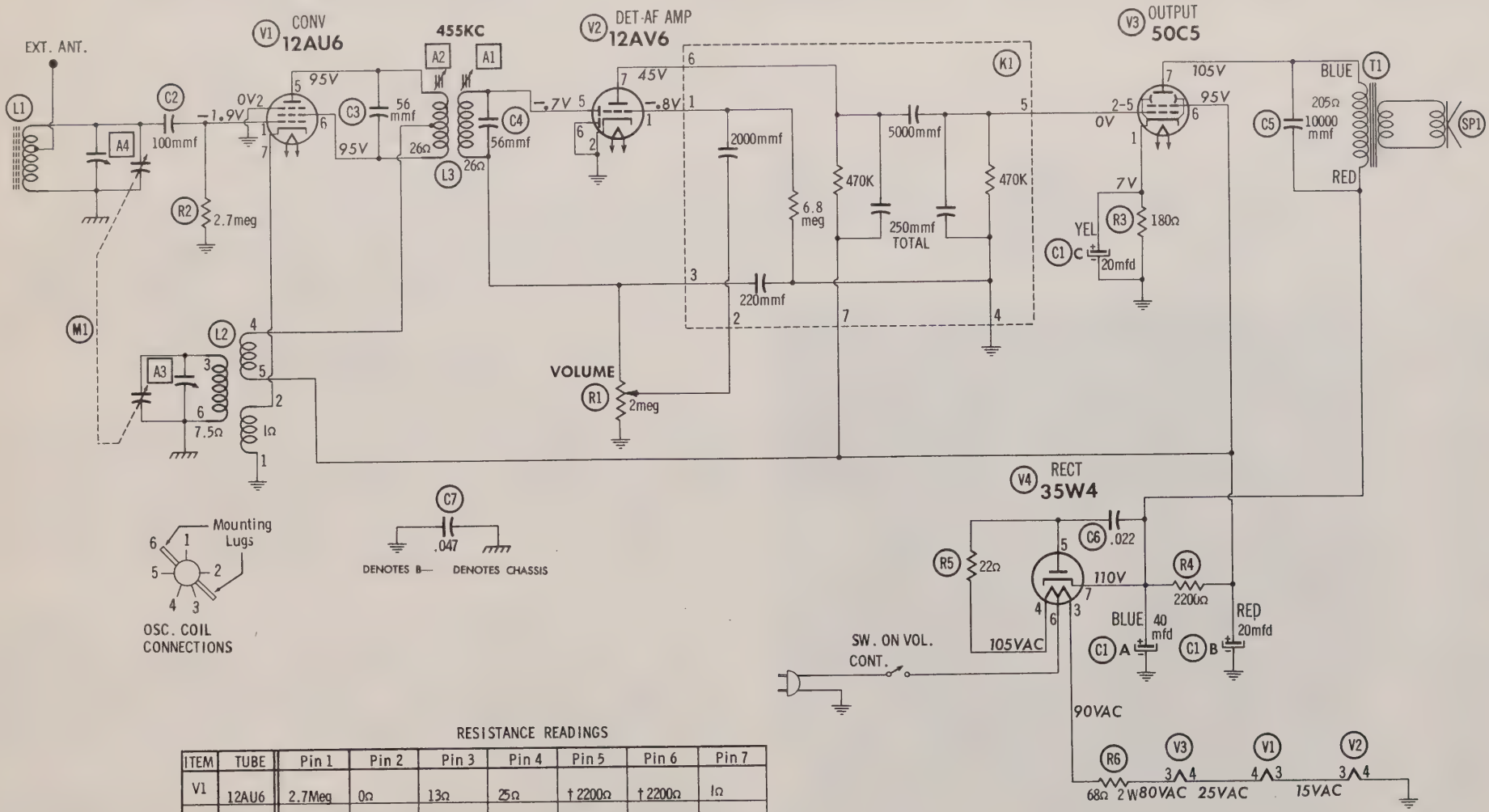
MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M1	Tuning Cap. Cabinet Knob Knob	R-1481 #525 R-1797 R-1805	2 Gang (21-290MMF, 12-115MMF) White Tuning Volume

CHASSIS—BOTTOM VIEW



CORONADO
MODEL RA12-812IA



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.7Meg	0Ω	13Ω	25Ω	†2200Ω	†2200Ω	1Ω
V2	12AV6	6.8Meg	0Ω	13Ω	0Ω	2Meg	0Ω	†470K
V3	50C5	180Ω	470K	75Ω	25Ω	470K	†2200Ω	†205Ω
V4	35W4	NC	NC	145Ω	180Ω	205Ω	175Ω	100K

† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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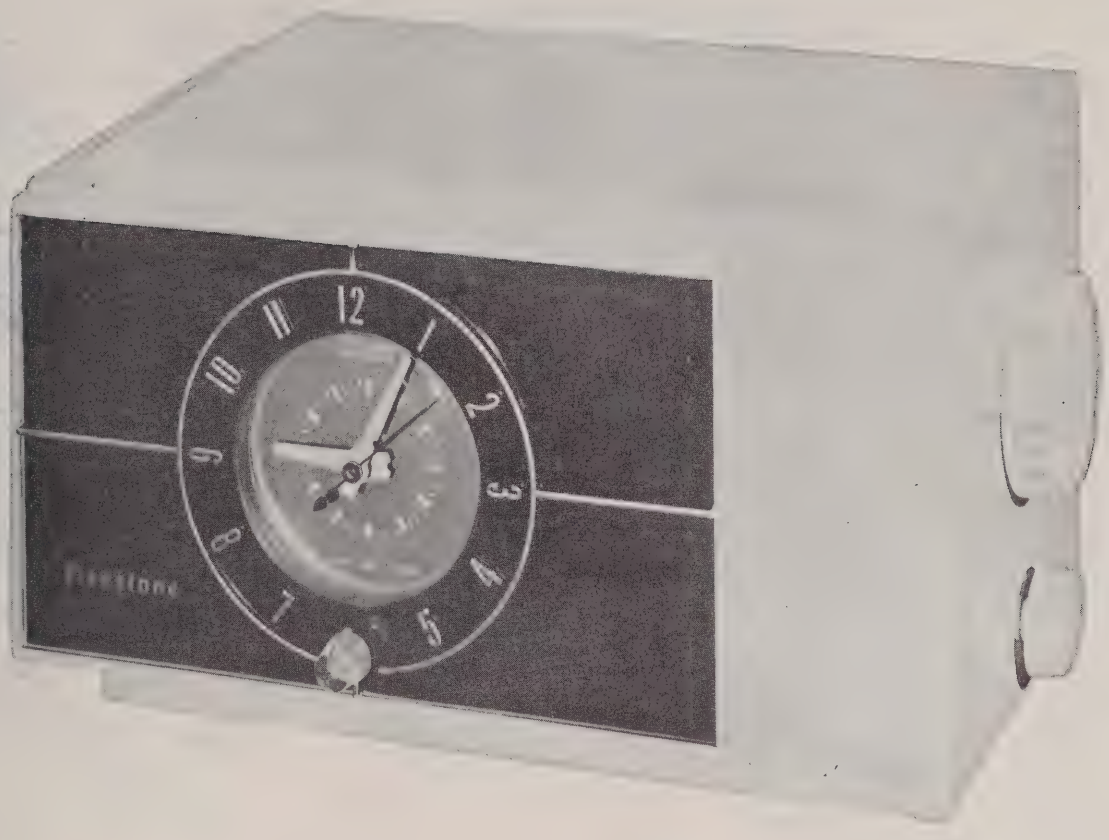
FIRESTONE
MODEL 4-A-160



FIRESTONE
MODEL 4-A-160

TRADE NAME	Firestone Model 4-A-160 (Code 297-6-581)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Parkway, Akron, Ohio
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Four)	Types 12AU6 Converter, 12AV6 Det.-AF Amp., 50C5 Output, 35W4 Rectifier

POWER SUPPLY 110-120 Volts AC-60 Cycles RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST 540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to antenna stator plates of tuning gang. Low side to B-.	455KC (400∿Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A3	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

FIRESTONE
MODEL 4-A-160

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12AU6	
V2	Det. -AF Amplifier	12AV6	

ITEM No.	USE	TYPE	NOTES
V3	Output	50C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	FIRESTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	R-1482	PRS150/25V	BBRT4215C	TCT3114	TDLT-12	FMT-321	TVA-3423
B	20	150		4020/20					
C	20	15							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	2. 2									
C3	100		N-6015	SI 100	D6-101	TP34	GP-100	UC-531	5GA-T1	
C4	56									
C5	56									
C6	10000		N-9062	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C7	10000		N-9062	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C8	.047	200	R-1462	BPD-05	DF-503	CUB2S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	FIRESTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2Meg	½	R18161	AB-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A

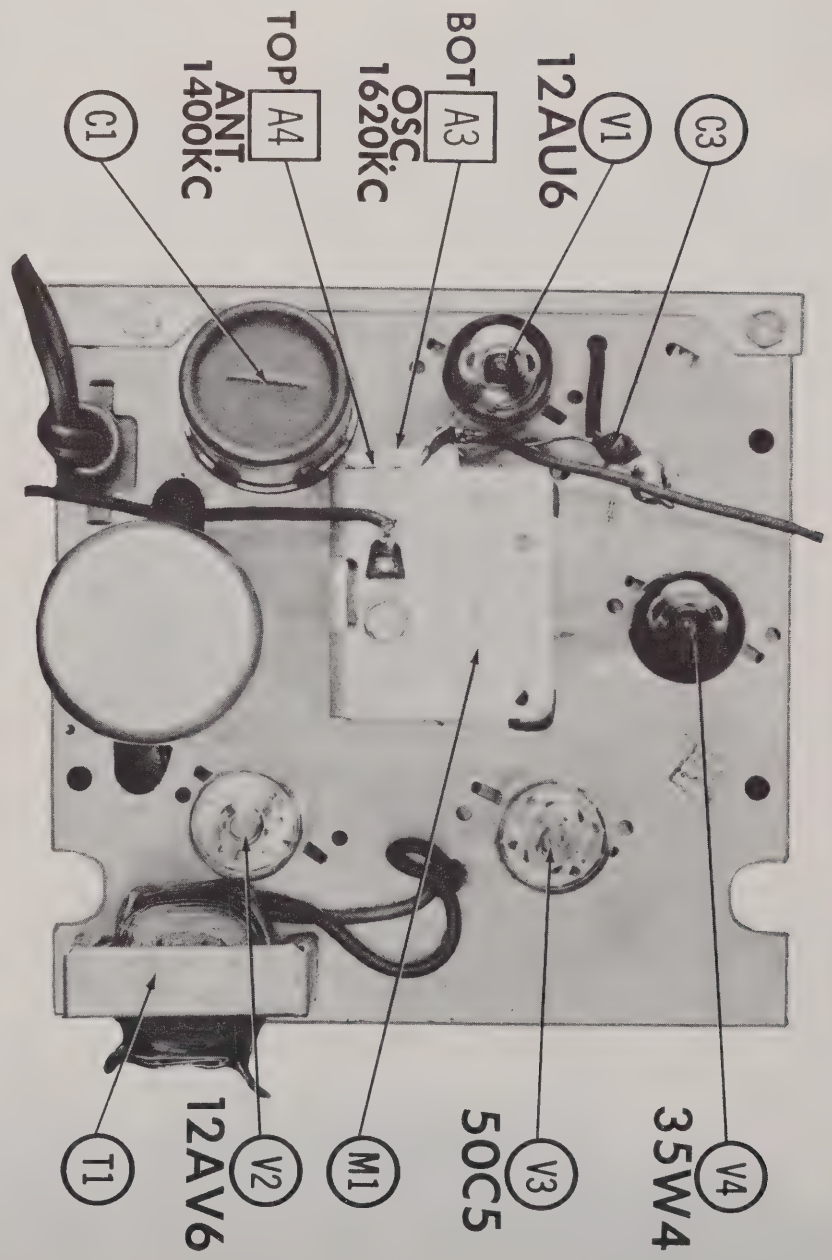
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R2	2. 7Meg			BTS-2. 7Meg	
R3	180Ω			BTS-180	
R4	2200Ω			BTS-2200	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R5	68Ω	2	R-1483		
R6	22Ω			BTS-22	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	FIRESTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	3-4Ω	R-1841	Z1101 ①	A-3025 ①	A-3332 ①	26S58 ①	S-12X ①	① Use original channel

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	QUAM PART No.	RCA TYPE No.	
SP1	3½"	PM	3-4Ω	R-1863	3A07		

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	FIRESTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	2.4Ω		R-1864				
L2	Osc. Coil	1Ω	7.8Ω	R-2116				Tertiary winding-1.9Ω
L3	IF Trans.	26Ω *	26Ω	R-1898				* Tapped @ 1Ω

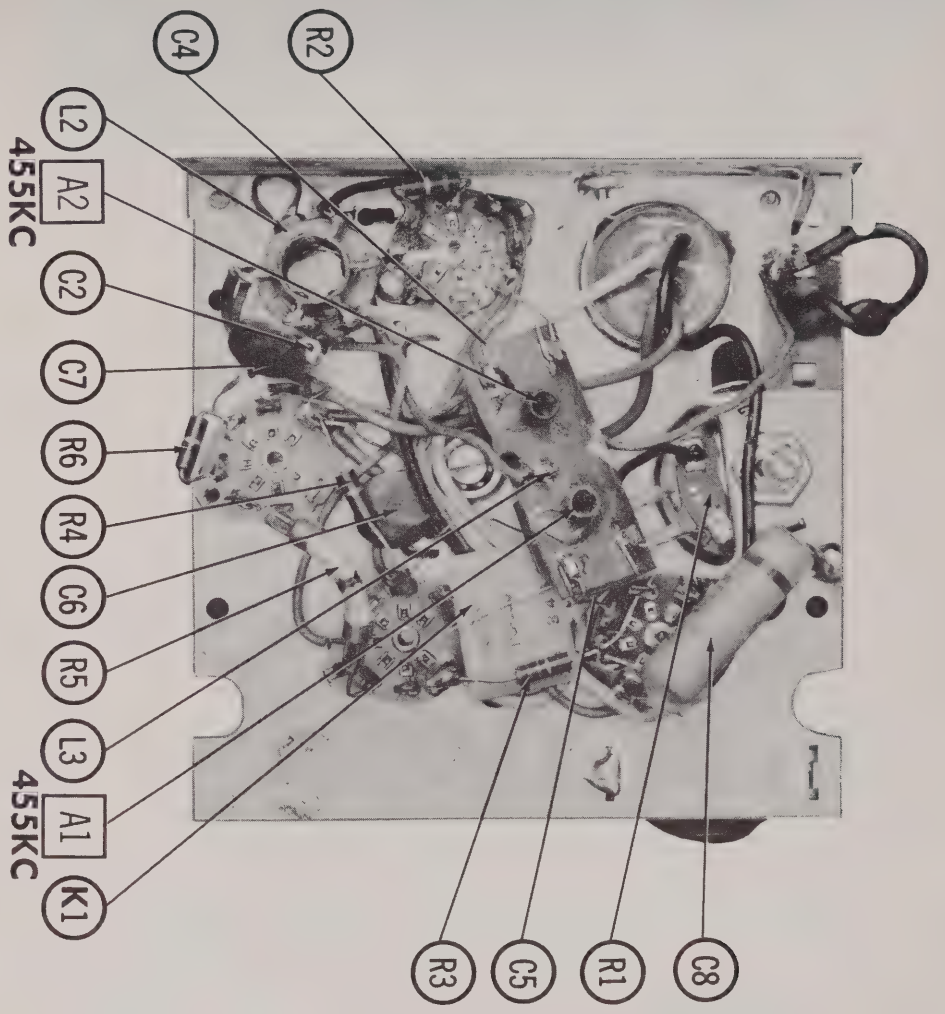
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	FIRESTONE PART No.	REPLACEMENT DATA	
K1	Detector-Audio Circuit	5000MMF, 2000MMF, 250MMF, 220MMF, 6.8Meg, 470K, 470K	R-1487	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-113-1 PC-150 116TM1 1408-01 DT-1

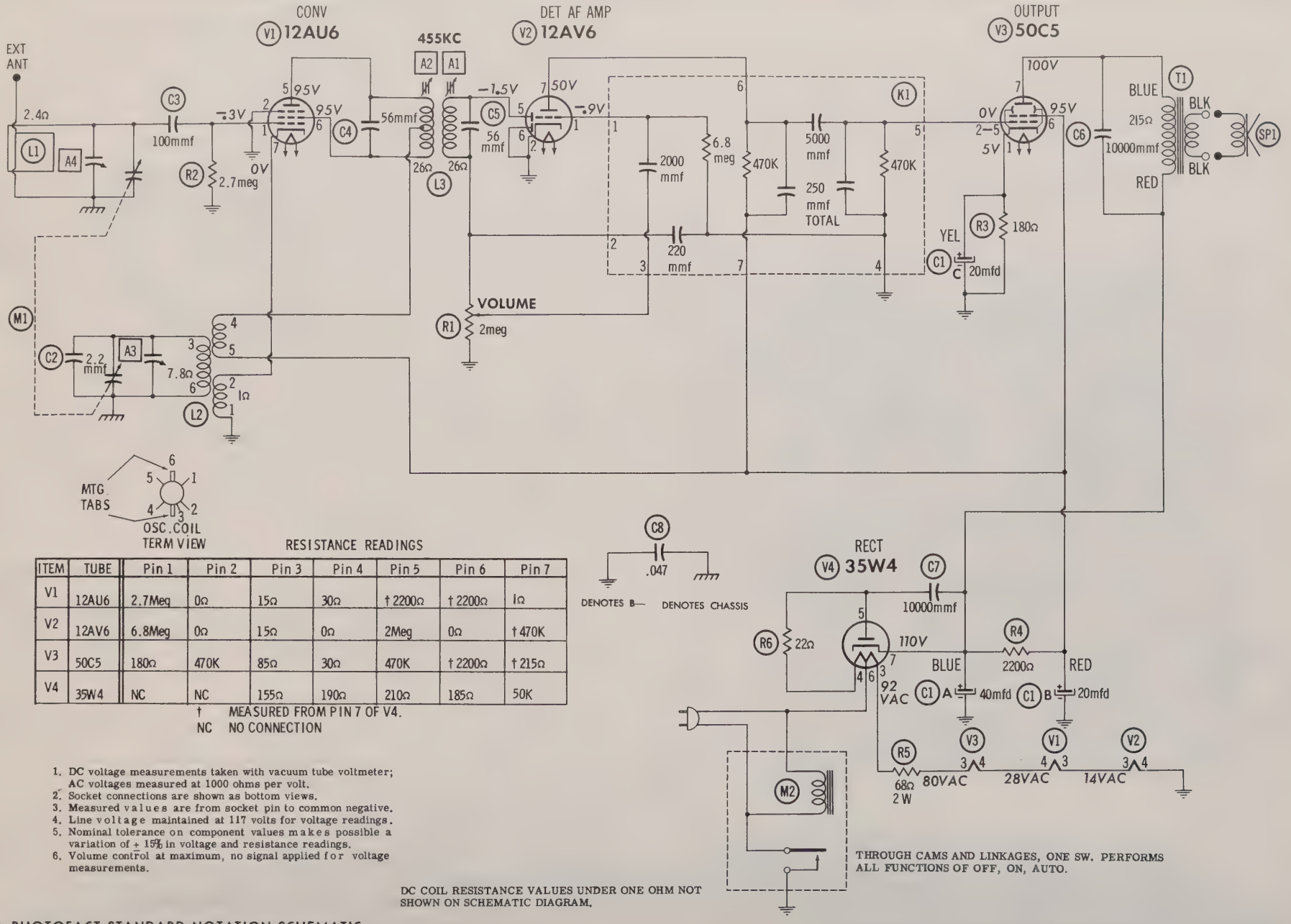
MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M1	Tuning Cap.	R-1481	2 Gang (21-290MMF, 12-115MMF)
M2	Clock	R-1862	
	Cabinet	581	Pink and Black
	Cabinet	599	Ivory and Black
	Knob	R-2150	Volume (Pink)
	Knob	R-2022	Volume (Ivory)
	Knob	R-2268	Tuning (Pink)
	Knob	R-2382	Tuning (Ivory)
	Knob	N-9783	Clock (Clear)

CHASSIS—BOTTOM VIEW



FIRESTONE MODEL 4-A-160



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.7Meg	0Ω	15Ω	30Ω	†2200Ω	†2200Ω	1Ω
V2	12AV6	6.8Meg	0Ω	15Ω	0Ω	2Meg	0Ω	†470K
V3	50C5	180Ω	470K	85Ω	30Ω	470K	†2200Ω	†215Ω
V4	35W4	NC	NC	155Ω	190Ω	210Ω	185Ω	50K

† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

THROUGH CAMS AND LINKAGES, ONE SW. PERFORMS ALL FUNCTIONS OF OFF, ON, AUTO.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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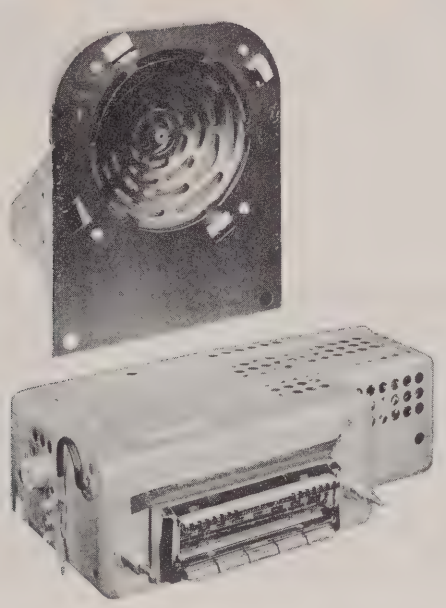

OLDSMOBILE
MODEL 983336

OLDSMOBILE
MODEL 983336

TRADE NAME	Oldsmobile Model 983336 (For 1956 Oldsmobile Automobiles)
MANUFACTURER	Delco Radio Div., G.M. Corp., Kokomo, Ind.
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Manual & Signal Seeking Tuning
TUBES (Eight)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12BF6 Det.-AVC-AF Amp., (2) 12V6GT Output, 12AU7 Trigger, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal ganerator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Tone control to treble (maximum clockwise).
Sensitivity control to Position "2".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400∿Mod)	High Frequency end stop. (See remarks)	DC probe to ungrounded side of C2. Common to chassis.	A1, A2, A3	Insert 0.070" feeler gauge (or bare #13 wire) in slot against high freq. end stop. Allow planetary arm to run against feeler gauge by turning manual control. Adjust A1, A2 and A3 for maximum deflection.
2.	"	"	"	"	"	A4	Adjust for MINIMUM deflection.
3.	68MMF	High side thru 68MMF to antenna receptacle. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check setting of oscillator core (A8). Rear of core should be 1 25/32" from mounting end of coil form. If necessary, make this adjustment and reseal core. Adjust A5, A6 and A7 for maximum deflection.
4.	"	"	600KC	Tune to 600KC signal	"	A9, A10	Adjust for maximum deflection.
5.	"	"	1615KC	Tune to 1615KC signal	"	A6, A7	"
6.	"	"	1000KC	Tune to 1000KC signal	"		If necessary, adjust pointer adjustment screw so that pointer reads 1000KC on dial.

With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, adjust A7 for maximum volume.

PUSH BUTTON ADJUSTMENT

Expose selector tabs by opening hinged door below dial.
Manually tune to station desired nearest low end of dial. Line tab nearest low end of dial up with pointer.
Repeat on remaining tabs working from left to right side of dial. Check with corresponding push buttons.
Readjust if necessary.

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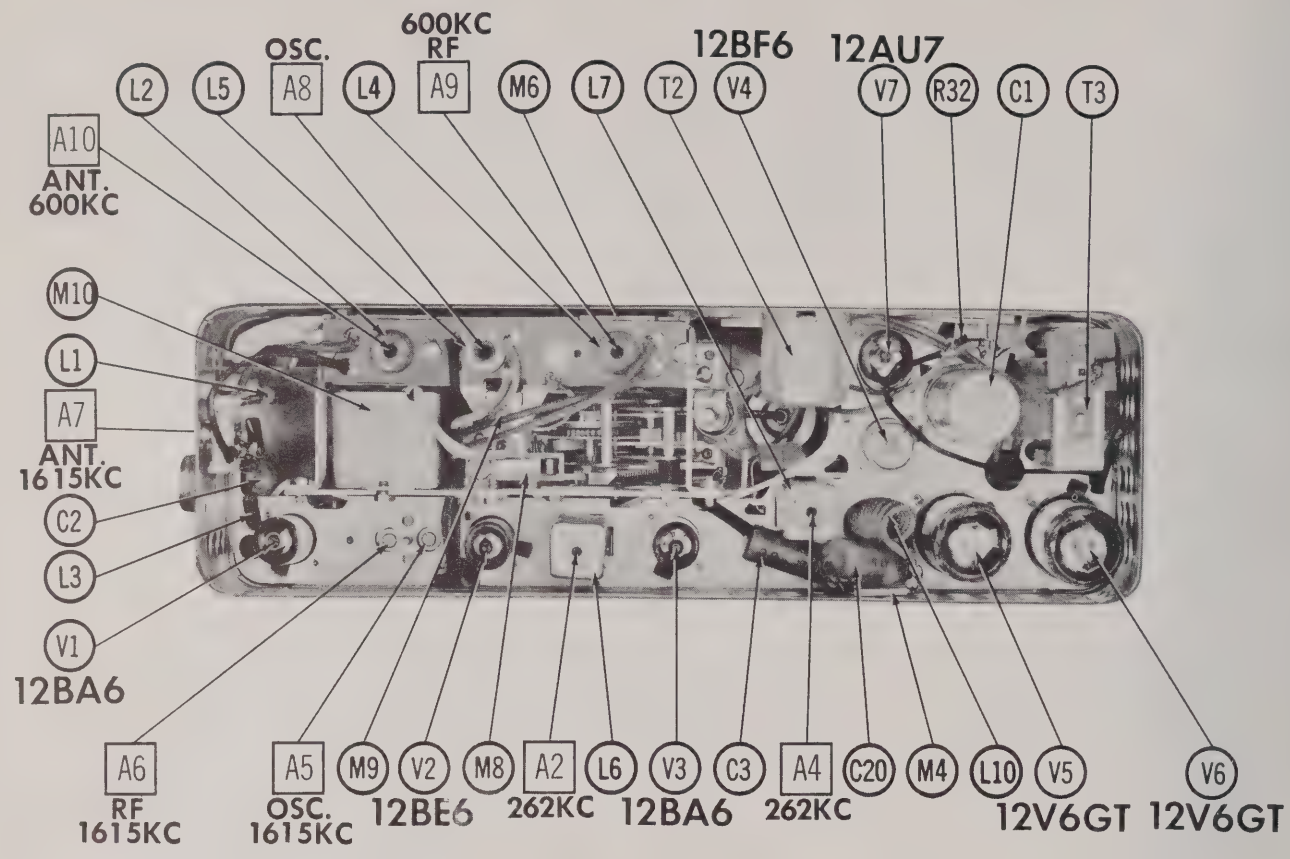
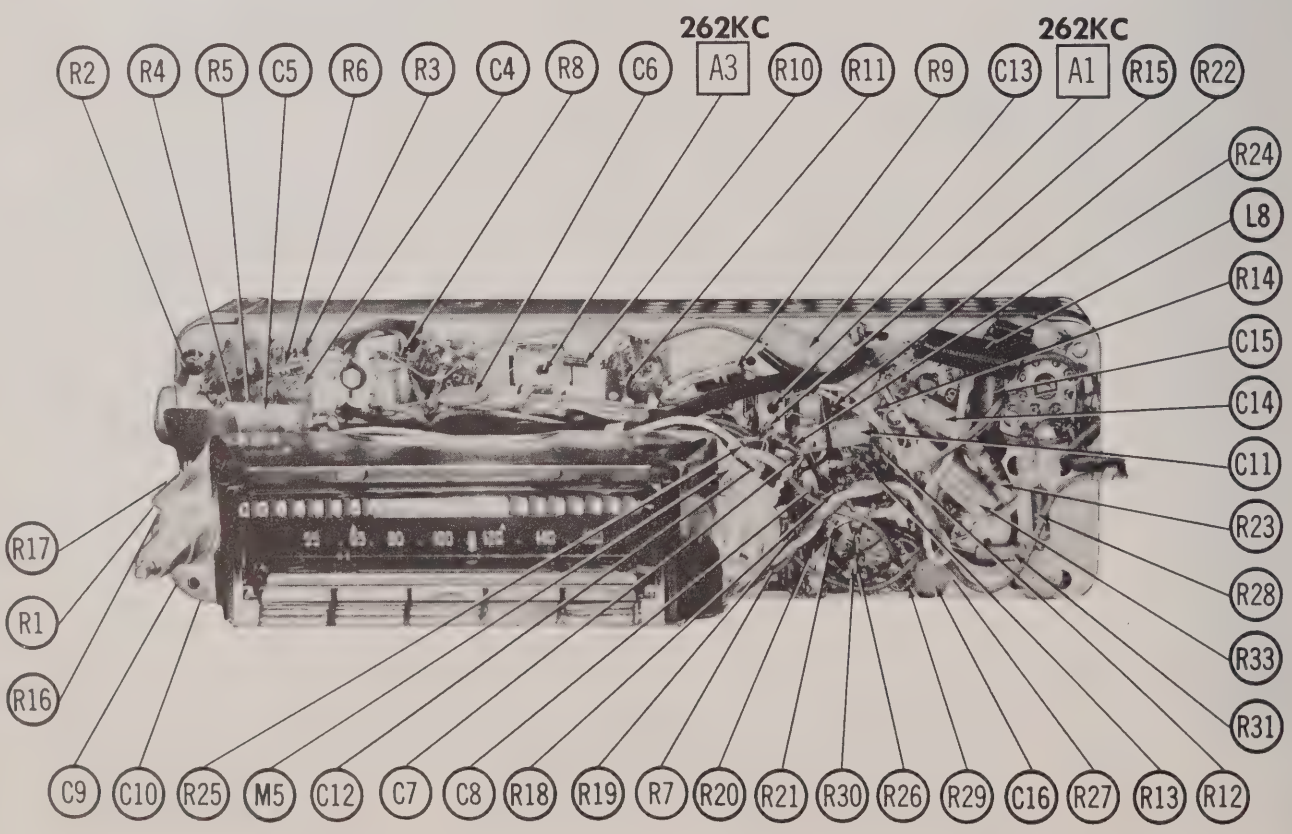


TUNER CHASSIS - REAR VIEW



TUNER CHASSIS - FRONT VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det.-AVC-AF Amplifier	12BF6	
V5	Output	12V6GT	
V6	Output	12V6GT	
V7	Trigger	12AU7	
V8	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6322	AFH3-120	CO990	FP345.8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200	6512	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C3	.1	400	6590	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C4A	68		G-680	NP0-DI68	TCZ-68	Z038	TCO-68		5TCC-Q68	Note 1
B	39		6366	NP0-DI39	TCZ-39	Z031	TCO-39		5TCC-Q39	Note 1
C5	.05	200	6512	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C6	250		7266596							
C7	100	500	1212358	NP0-DI 100	TCZ-100	22R5T1	TCO-100	MCE235	MS-31	
C8	100	500	1212358	NP0-DI 100	TCZ-100	22R5T1	TCO-100	MCE235	MS-31	
C9	22	500		SI 22	D6-220	5W5Q22	GP-22	UC-5422	1FM-422	
C10	.0039	600	6530	BPD-004	D6-402	CUB6D4	GP-4000	GEM-624	6TM-D4	
C11	.005	600		BPD-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	Note 2
C12	220	500	G-221	SI 220	D6-221	5W5T22	GP-220	UC-5322	1FM-322	
C13	.1	400	6513	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C14	.015	200	7237719	BPD-015	DD16-153	CUB6S15		GEM-4115	4TM-S15	
C15	.0022	1000	H-302	HVD-15-2200	DD16-302	CUB16D22	HD15-2200	GEM-10222	10TM-D22	
C16	2000		6352	BPD-002	DD-202	K072	ED-002	DC522	5HK-D2	
C17	.007	1600	6567	P1688N-007	DD16-702	CUB16D7		GEM-1627	MB-D7	
C18	.47	100	6592	VHC36		ST2P5		RF480	68P20	
C19	.47	100	6592	VHC36		ST2P5		RF480	68P20	
C20	.47	100	6592	VHC36		ST2P5		RF480	68P20	

Note 1. C4A and C4B may be single items in some versions.
Note 2. Some versions may use .003MFD in this application.

CONTROLS

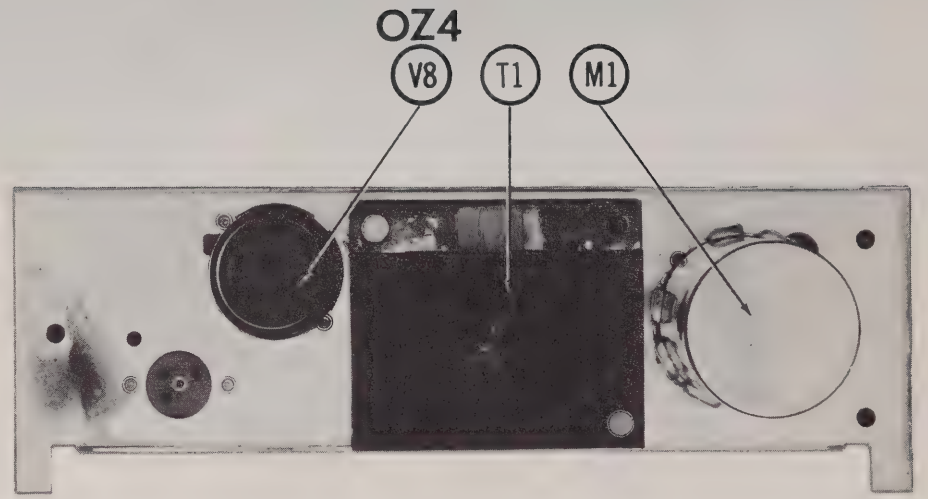
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	7266923				U55A	Tone (Panel) Note 1
B	1.5Meg	½					UR26-T25	Volume (Rear) Tap ⓐ 350K
C	Bushing						EB-214	Attach to R1A
D	Switch						US-26T	Attach to R1B

Note 1. Some versions may use part #7264128 in this application.

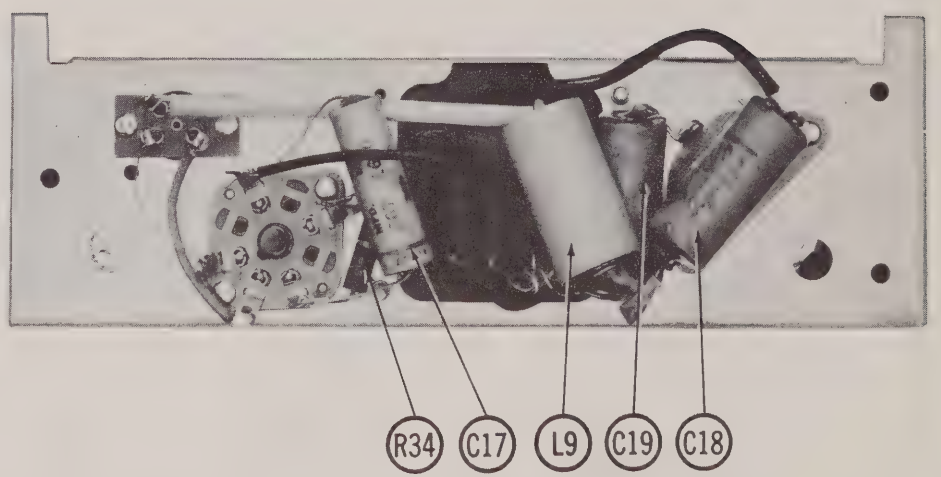
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R2	2.2Meg		1239	BTS-2.2Meg	
R3	10K	1	1137	BTA-10K	
R4	680K		1233	BTS-680K	
R5	100Ω		1113	BTS-100	
R6	330K		1229	BTS-330K	
R7	1.5Meg		1237	BTS-1.5Meg	
R8	22K		1215	BTS-22K	
R9	12K	2		BTB-12K	
R10	10Ω		1101	BTS-10	
R11	150Ω			BTS-150	Note 1
R12	1Meg		1235	BTS-1Meg	
R13	3300Ω 5%		1220173	BTS-3300 5%	
R14	1000Ω 5%		1220176	BTS-1000 5%	
R15	47K		1219	BTS-47K	
R16	820K 5%		1234	BTS-820K 5%	
R17	100K		1223	BTS-100K	



POWER SUPPLY – TOP VIEW



POWER SUPPLY – BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA DELCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R18	1.5Meg 5%		1219492	BTS-1.5Meg 5%	
R19	560K 5%		7267011	BTS-560K 5%	
R20	1Meg		1235	BTS-1Meg	
R21	470K 5%		7266924	BTS-470K 5%	
R22	47K	1	1259	BTA-47K	
R23	360Ω 5%	1	7234563	BW1-360	
R24	1200Ω		1126	BTS-1200	
R25	22K		1215	BTS-22K	
R26	910Ω 5%		7266033	BTS-910 5%	Note 2
R27	6800Ω 5%	1	1216154	BTA-6800 5%	
R28	47K	1	1220188	BTA-47K	
R29	5.6Meg		1244	BTS-5.6Meg	
R30	120K			BTS-120K	
R31	47K 5%	1	1220188	BTA-47K 5%	
R32	12K	1	1252	BTA-12K	
R33	1800Ω	7	1204		Note 3
R34	15K	1	1253	BTA-15K	

Note 1. Some versions may use 270Ω in this application (Part #1118).
Note 2. Some versions may use 1000Ω in this application.
Note 3. Mfgr. states to replace with 2700Ω, 2W (Part #1171) and 5600Ω, 1W (Part #1167) connected in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT @ 2.4A	385VCT @ .062A			6067	V3902	P-2861	P-6489	22R52	

TRANSFORMER (AUDIO INPUT)

ITEM No.	Resistance PRI.	Resistance SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	1800Ω CT		7267309						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	7800Ω	3-4Ω	6063	Z1002	A-2936	A-3852	22S87	S-15X	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA DELCO PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	8"	PM	3-4Ω	7267028	8A21	208S2	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Coupling Coil	.5Ω		7255738	19-1004		4610	7 Microhenries
L2	Ant. Coil	9.5Ω		7257979				
L3	RF Coupling Coil	3.9Ω		7240251	19-6022		4626	28 Microhenries
L4	RF Coil	9.5Ω		7257979				
L5	Osc. Coil	.9Ω	3.8Ω	7263287				
L6	Input IF	40Ω	40Ω	1219508	16-6752	BC-350	12-H1	
L7	Output IF	32Ω	32Ω	1220204				
L8	Fil. Choke	0Ω		1217846				1.4 Microhenries
L9	Vib. Hash Choke	.1Ω		7262994				42 Microhenries
L10	Fil. Choke	0Ω		1217846				1.4 Microhenries

VIBRATOR

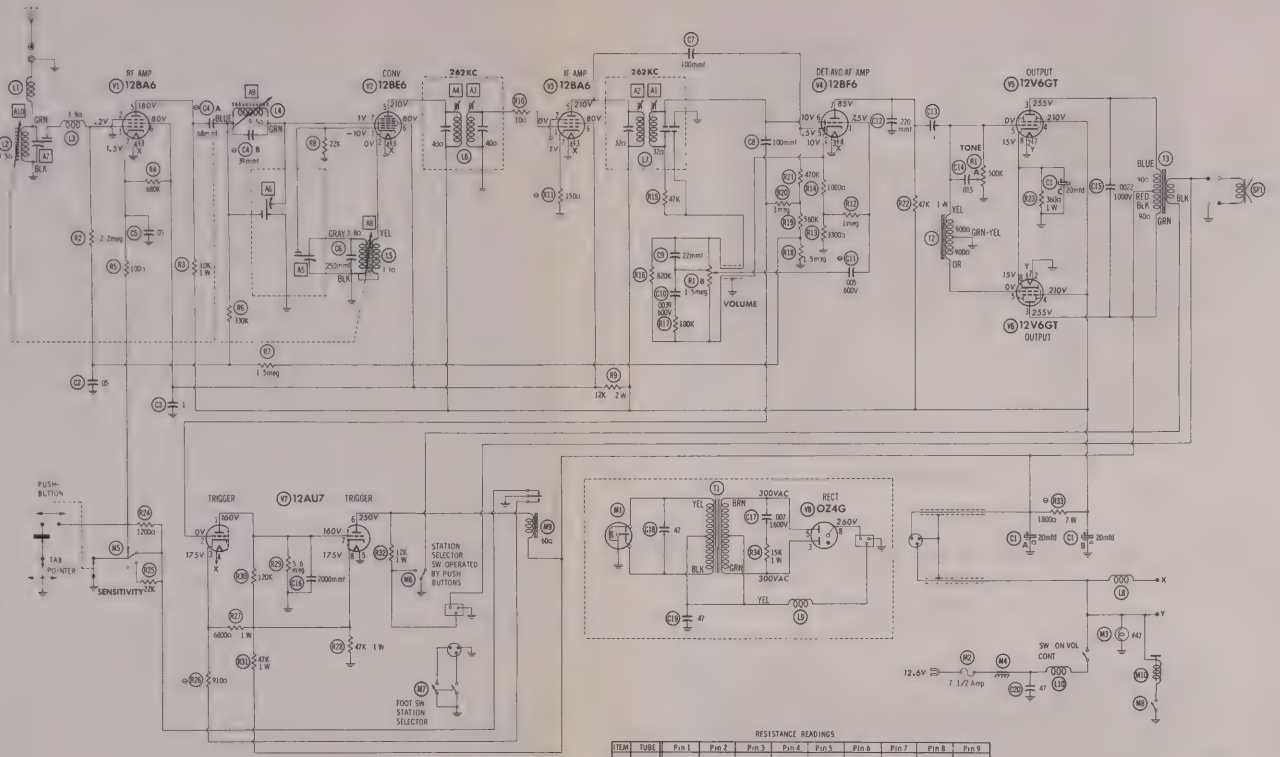
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M1	Interrupter	12.6V	115∿	8550	6330	G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA DELCO PART No. FUSE	DELCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2		7.5A	7263227		30307.5 (7AG 7½A)			

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Dial Light		#57
M4	Spark Plate	1212278	
M5	Switch	7266917	Sensitivity
M6	Switch	7263912	Station Selector
M7	Switch	7263209	Foot (Station Selector)
M8	Switch	7263340	Tuner Return
M9	Relay	1220326	
M10	Solenoid	1220685	Includes plunger
M11	Trimmer Cap.	7242454	Dual : A5 (Osc.) and A6 (RF)
A7	Trimmer Cap.	7262997	Ant.
	Knob	567766	On-off-volume & tuning
	Knob	567764	Tone
	Knob	567767	Sensitivity



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	5 2Meg	0Ω	2Ω	0Ω	†12K	†14K	100Ω		
V2	12BE6	22K	1 1Ω	2Ω	0Ω	†1800Ω	†14K	3 3Meg		
V3	12BA6	55Ω	0Ω	2Ω	0Ω	†1800Ω	†14K	150Ω		
V4	12BF6	1Meg	4300Ω	0Ω	2Ω	2 5Meg	580K	†50K		
V5	12V6GT	NC	0Ω	†90Ω	†1800Ω	900Ω	TP	2Ω	360Ω	
V6	12V6GT	NC	0Ω	†90Ω	†1800Ω	900Ω	TP	2Ω	360Ω	
V7	12AU7	†170K	3Meg	50K	2Ω	0Ω	†60Ω	165K	47K	0Ω
V8	0Z4	0Ω	NC	220Ω	NC	220Ω	NC	TP	70K	

† MEASURED FROM PIN 8 OF V8
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom view.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 1.5 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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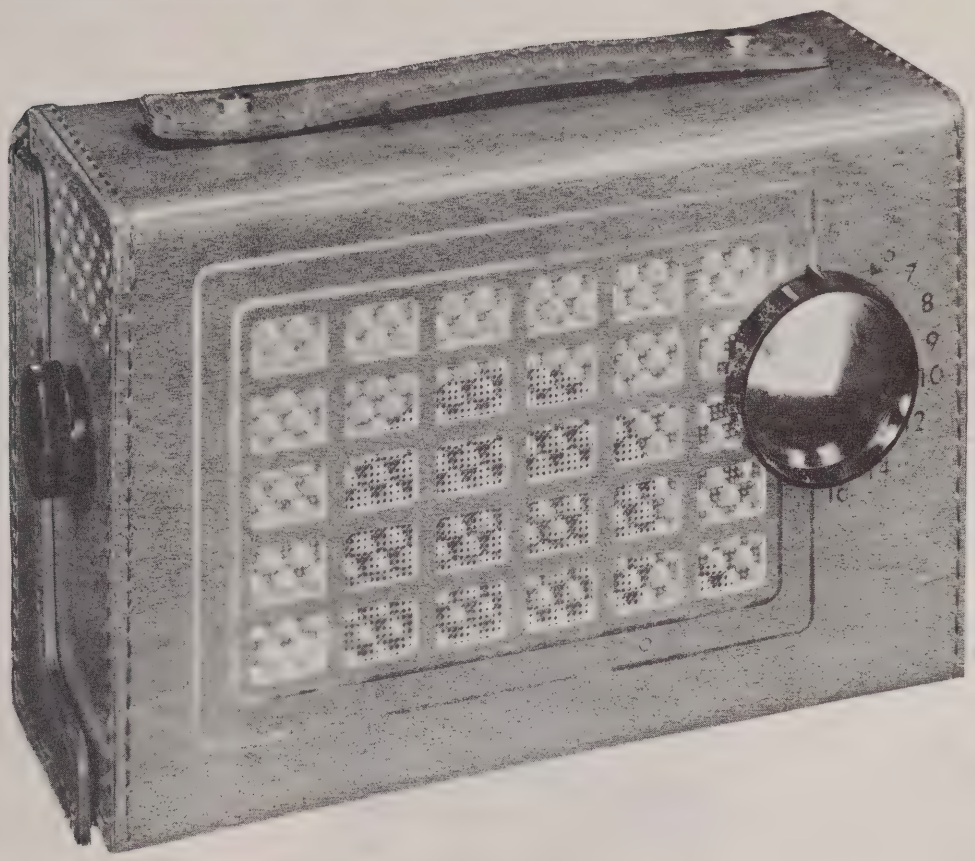
PHILCO MODELS E-670, E-672, E-675, E-676



PHILCO MODELS E-670, E-672, E-675, E-676

TRADE NAME	Philco Models E-670, E-672, E-675, E-676
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Three Power Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output
POWER SUPPLY	110-120 Volts AC-DC (or) 7.5 Volts "A" Supply & 90 Volts "B" Supply
RATING	.13 Amp. @ 117 Volts AC (or) 50MA @ 7.5 Volts DC & 12MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	1620KC	"	A4	Fully open tuning gang. Place a .006" shim beneath heel of rotor and close gang until it holds shim in place. Remove shim without disturbing setting of gang. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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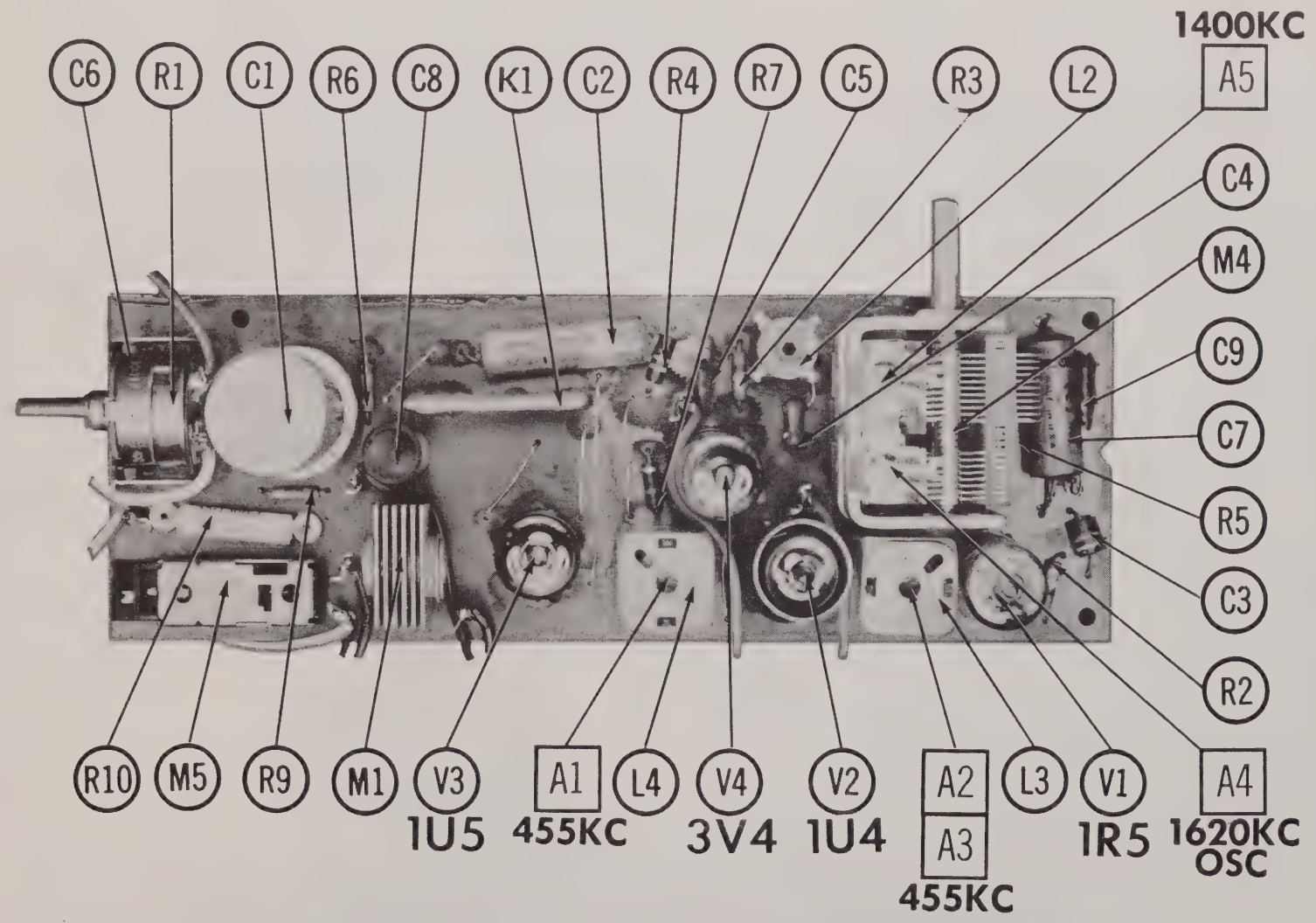


CHASSIS-TOP VIEW

PHILCO
MODEL E-670

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det.-AVC-AF Amp.	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	30-2587-7	AFH3-64-65		FP302.5			
B	▲60	150							
C	■250	10							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C3	47		30-1230-4	NP0-SI47	TCZ-47	TZ22	TCO-47	ZT-5447	5TCC-Q47	
C4	5		30-1224-35							
C5	10000		30-1262	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C6	100		62-110009001	SI 100	D6-101	TP34	GP-100	UC-531	5GA-T1	
C7	.22	100	30-4681-6	P288N-22		CUB2P22		PT4022	2TM-P22	
C8	.047	400	30-4685-45	BPD-05	DF-503	CUB4S47		ACE-6147	4SE-S47	
C9	10000		30-1262	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	33-5575-6					Volume
B	Switch		Not Req.					Attach to R1A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	NOTES
R2	100K		66-4108340	BTS-100K	
R3	15K		66-3158340	BTS-15K	
R4	3.3Meg		66-5338340	BTS-3.3Meg	
R5	390Ω		66-1398340	BTS-390	
R6	680Ω		66-1688340	BTS-680	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	NOTES
R7	270Ω		66-1278340	BTS-270	
R8	2000Ω	10	33-1362-5	PW10-2000	
R9	820Ω		66-1828340	BTS-820	
R10	150Ω	2.5	33-1366-1	PW4-150	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	10K	3-4Ω	32-8434-1		A-2998	A-3329	24S49	S-11X	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA PHILCO PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	4"	PM	3-4Ω	36-1654-3	4A07	223S1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Stick	76-11071				
L2	Osc. Coil	32-4618-2				
L3	Input IF	32-4583-8		BC-357	13-PC1	
L4	Output IF	32-4583-9				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA	
K1	Detector-Audio Circuit	10Meg, 4.7Meg, 3.3Meg, 1Meg, 2000MMF, 150MMF, 10000MMF, 150MMF, 5000MMF	30-6014	Aerovox Centralab Sprague	PA-570 PC-165 DP-1

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA PHILCO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.068A	34-8003-18	1276	RS75	6S100	5M1	75S	

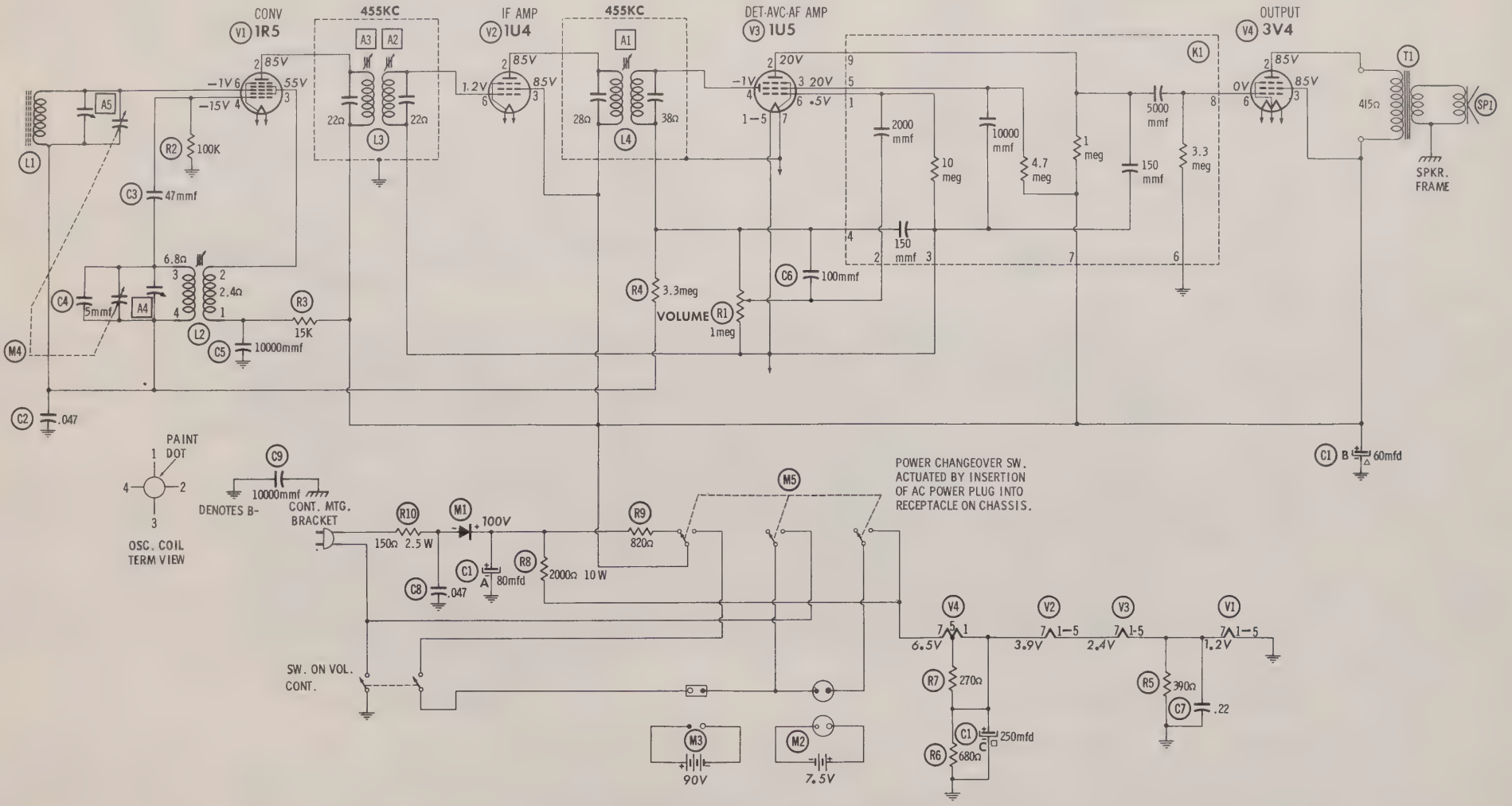
BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M2	7½V "A"	P-31	717			C5			
M3	90V "B"	P-176 (or) P-190 *		479			P60		* P-190 used only in Model E-676

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M4	Tuning Cap.	31-2780-6	2 Gang
M5	Switch	42-2061	Battery Changeover (DPDT Plug Actuated Slide Type)
	Printed Panel	54-6268	
	Cabinet	11186	Model E-670
	Handle	54-6205-3	Model E-670
	Cabinet	11184	Model E-672
	Handle	54-6205-4	Model E-672
	Knob	54-6147-4	Tuning Models E-670 and E-672
	Knob	54-6016-9	Volume, Models E-670 and E-672
	Cabinet	11183	Model E-675
	Handle	54-6205	Model E-675
	Knob	54-6147-10	Tuning Model E-675
	Knob	54-6016-20	Volume Model E-675
	Cabinet	11185	Model E-676
	Handle	54-6205-5	Model E-676
	Knob	54-6271	Tuning Model E-676
	Knob	54-6016-21	Volume Model E-676

PHILCO MODEL E-670



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†820Ω	†16K	100K	•	4.3Meg	•
V2	1U4	•	†820Ω	†820Ω	TP	•	390Ω	•
V3	1U5	•	†1Meg	†4.7Meg	1Meg	•	10Meg	•
V4	3V4	•	†1200Ω	†820Ω	TP	•	3.3Meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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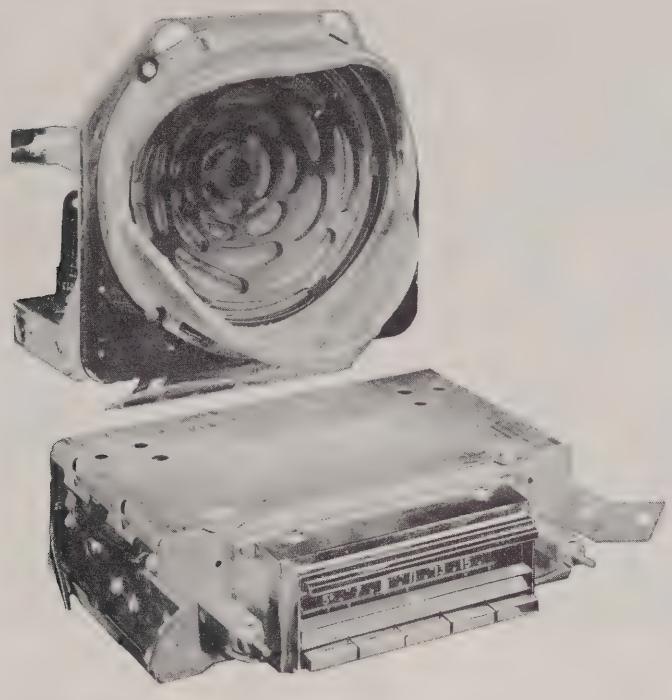

PONTIAC
MODEL 988569

TRADE NAME	Pontiac Model 988569 (For 1956 Pontiac Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Manual And Signal Seeking Tuning
TUBES (Eight)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12AU6 IF Amplifier, 12BF6 Det-AVC-AF Amp., (2) 12V6GT Output, 12AU7 Trigger, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Tone control to treble. (Maximum clockwise.)
Sensitivity control to position "2".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	262KC (400% Mod)	High frequency end stop. (See remarks.)	DC probe to ungrounded side of C2. Common to chassis.	A1, A2, A3	Insert 0.070" feeler guage (or bare #13 wire) in slot against high frequency end stop. Allow planetary arm to run against feeler guage by turning manual control. Adjust A1, A2 and A3 for maximum deflection.
2.	"	"	"	"	"	A4	Adjust for MINIMUM deflection.
3.	68MMF	High side thru 68MMF to antenna receptacle. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check setting of oscillator core (A8). Rear of core should be 1 25/32" from mounting end of coil form. If necessary, make this adjustment and reseal core. Adjust A5, A6 and A7 for maximum deflection.
4.	"	"	600KC	Tune to 600KC signal.	"	A9, A10	Adjust for maximum deflection.
5.	"	"	1615KC	Tune to 1615KC signal.	"	A6, A7	"
6.	"	"	1000KC	Tune to 1000KC signal.	"		If necessary, adjust pointer adjustment screw so that pointer reads 1000KC on dial

With radio installed in car and antenna fully extended, tune in a weak station between 600KC and 1000KC, adjust A7 for maximum volume.

PUSHBUTTON ADJUSTMENT

Expose selector tabs by opening hinged door below dial. Manually tune to station desired nearest low end of dial. Line tab nearest low end of dial up with pointer. Repeat on remaining tabs working from left to right side of dial. Check with corresponding pushbuttons. Readjust if necessary.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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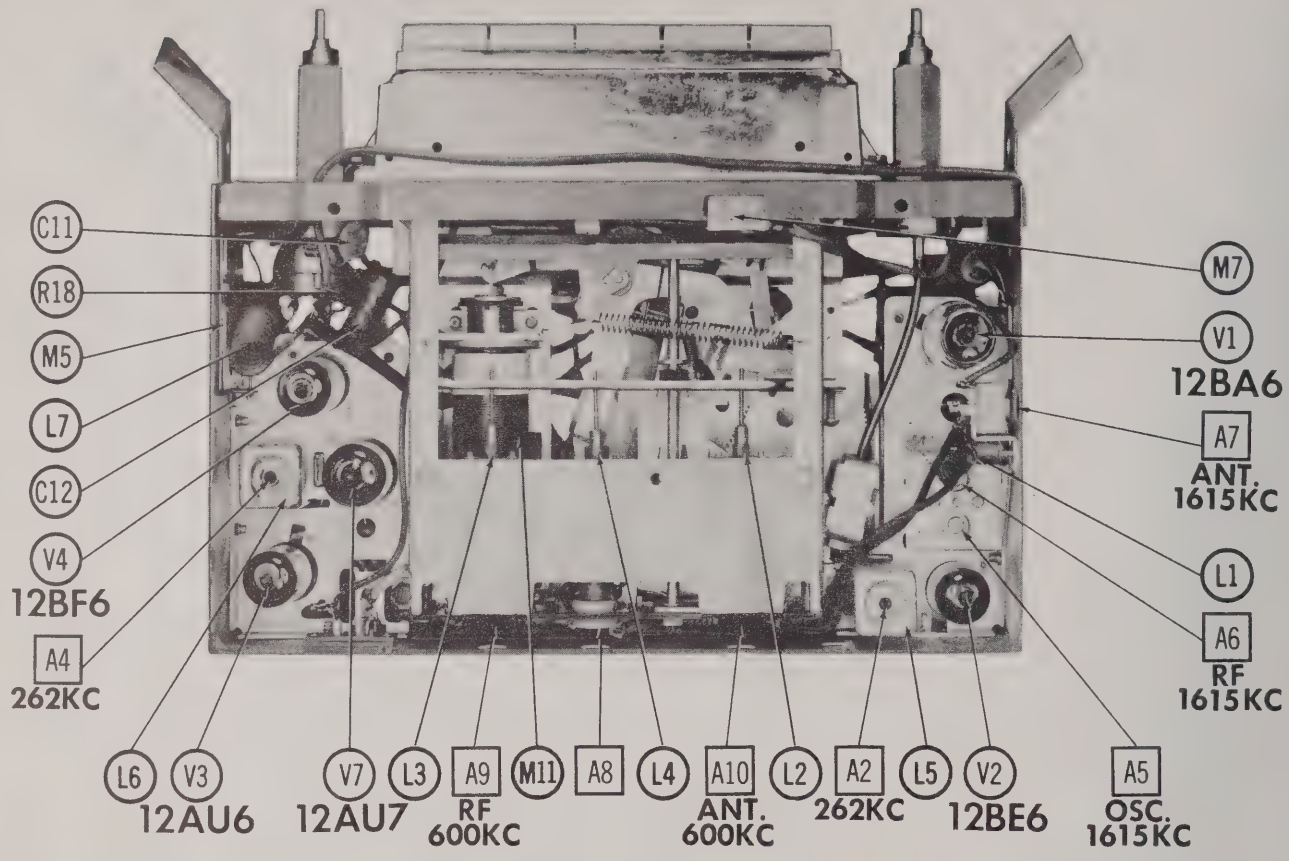
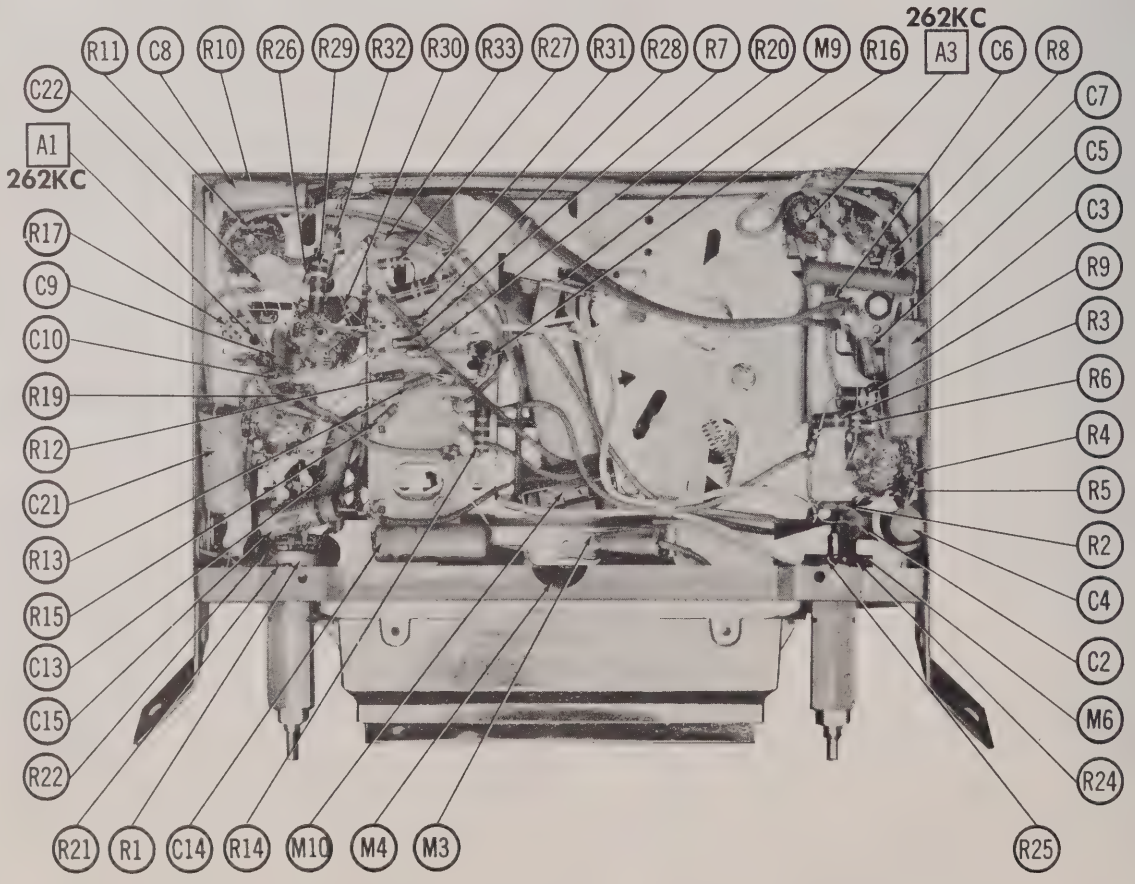


TUNER CHASSIS - TOP VIEW



TUNER CHASSIS - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12AU6	
V4	Det-AVC-AF Amp.	12BF6	

ITEM No.	USE	TYPE	NOTES
V5	Output	12V6GT	
V6	Output	12V6GT	
V7	Trigger	12AU7	
V8	Rectifier	0Z4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	400	6322	AFH3-120	C0990	FP345.8	TMT-106	T-550	TVL-3678
B	▲20	400							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200	6512	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C3	.1	400	6513	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C4	.05	200	6512	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C5	68	500	6369	SI68	D6-680	5W5Q68	GP-68	UC-5468	5GA-Q68	
C6	39		6366	NP0-SI39	TCZ-39	22R5Q39	TCO-39		MS-439	
C7	250		7266598							
C8	.05	200	6512	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C9	100	500	1219498	SI 100	D6-101	5W5T1	GP-100	MC235	1FM-31	
C10	100	500	1219498	SI 100	D6-101	5W5T1	GP-100	MC235	1FM-31	
C11	150		6373	N750-DI 150	TCN-150	N046	TC7-150		5TCU-T15	
C12	.003	600	6529	DI-003	D6-302	CUB6D3	GP-3000	GEM-623	6TM-D3	
C13	.01	400	6510	BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C14	.1	400	6513	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C15	.015	200	7266664	BPD-015	DD16-153	CUB6S15	ED-015	●EM-4115	4TM-S15	
C16	100		6371	BPD-0001	DD-101	G042	ED-100	UC-531	5GA-T1	
C17	.004	800	6564	P1088N-004	DD16-402	CUB16D4		GEM-1024	10TM-D4	
C18	.007	1600	6567	P1688N-007	DD16-702	CUB16D7		GEM-1627	MB-D7	
C19	.47	100	6592	VHC36		ST2P5		RF-480	68P20	
C20	.47	100	6592	VHC36		ST2P5		RF-480	68P20	
C21	.2	100	6514	P288N-22		CUB6P2		GEM-402	4TM-P2	
C22	2000		6528	BPD-002	DD-202	K072	ED-002	DC522	5HK-D2	

CONTROLS

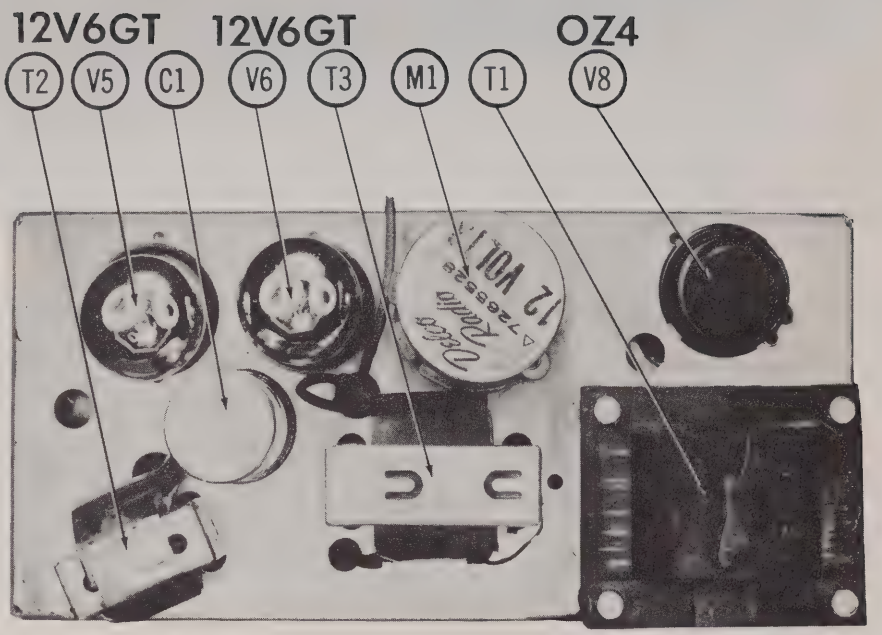
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	Switch	½	7266739					Tone
B	750K		Not Req.					Volume Tap ⓑ 200K
C	Switch		Not Req.					Power, Attach to R1B

RESISTORS

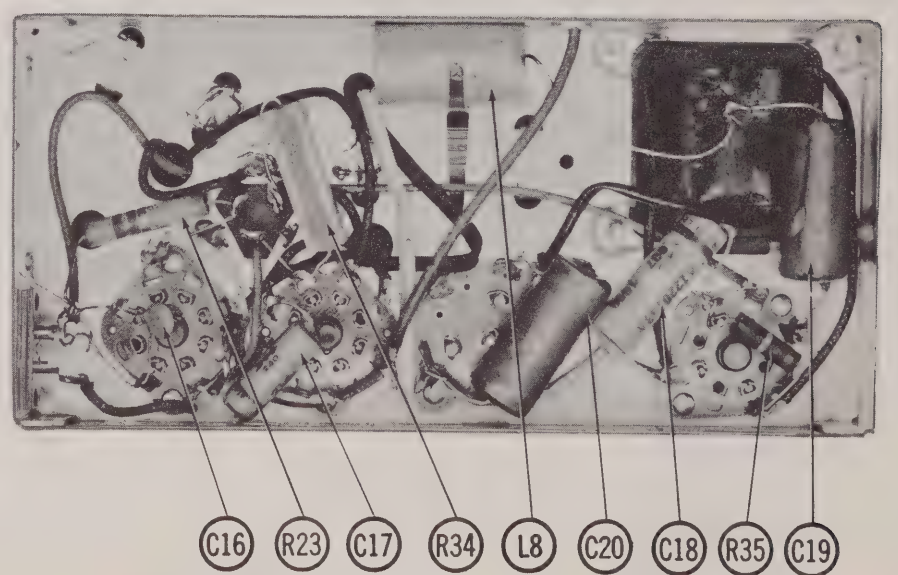
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R2	2.2Meg		1239	BTS-2.2Meg	
R3	10K	1	1174	BTA-10K	
R4	1Meg		1235	BTS-1Meg	
R5	100Ω		1113	BTS-100	
R6	330K		1229	BTS-330K	
R7	1.5Meg		1219492	BTS-1.5Meg	
R8	22K		1215	BTS-22K	
R9	12K	2	1276	BTB-12K	
R10	10Ω		1101	BTS-10	
R11	270Ω		1118	BTS-270	
R12	1Meg		1235	BTS-1Meg	
R13	2.2Meg		1239	BTS-2.2Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R14	47K	1	1259	BTA-47K	
R15	1000Ω		1125	BTS-1000	
R16	3300Ω		1131	BTS-3300	
R17	47K		1219	BTS-47K	
R18	82K		1222	BTS-82K	
R19	1Meg		1220169	BTS-1Meg	
R20	1.5Meg 5%		1219492	BTS-1.5Meg 5%	
R21	27K		1216	BTS-27K	
R22	10K		1137	BTS-10K	
R23	360Ω 5%	1	7234563	BW1-360 5%	
R24	1000Ω		1125	BTS-1000	
R25	22K		1215	BTS-22K	



POWER SUPPLY – TOP VIEW



POWER SUPPLY – BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R26	5.6Meg		1244	BTS-5.6Meg	
R27	330K		1229	BTS-330K	Note 1
R28	750Ω 5%		7266320	BTS-750 5%	
R29	3900Ω	1	1169	BTA-3900	
R30	120K		1224	BTS-120K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	DELCO PART No.	IRC PART No.	
R31	10K	1	1174	BTA-10K	
R32	47K	1	1220188	BTA-47K	
R33	33K 5%	1	7266230	BTA-33K 5%	
R34	1800Ω	7	1204	1 3/4A-1750	Note 2
R35	15K	1	1253	BTA-15K	

Note 1: Not used in some versions. Other versions may use two 330K (Part #1229) in parallel.
Note 2: Mfgr. states to replace with part #1204 and 1171 connected in parallel.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT ②1.8A	384VCT ②.62A			6067	V-3902	P-2861	P-6489	22R52	

TRANSFORMER (INPUT)

ITEM No.	RESISTANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1.8K CT		6061						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3	9800Ω CT	3-4Ω	6063	Z1404①②	A-2936 ①	A-3852①	24S61 ①	S-15X ①	① Fabricate mounting. ② Tape 8Ω & 15Ω windings.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	RCA TYPE No.	
SP1	8"	PM	3-4Ω	7265930	8A21	208S2	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		DELCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coupling Coil	7255738	19-1004		4610	
L2	Ant. Coil	7257979				
L3	RF Coil	7257979				
L4	Osc. Coil	7263287				
L5	Input IF	1219508	16-6752	BC-350	12-H1	
L6	Output IF	1220204				
L7	Fil. Choke	1217846				
L8	Vib. Hash Choke	7265389				

VIBRATOR

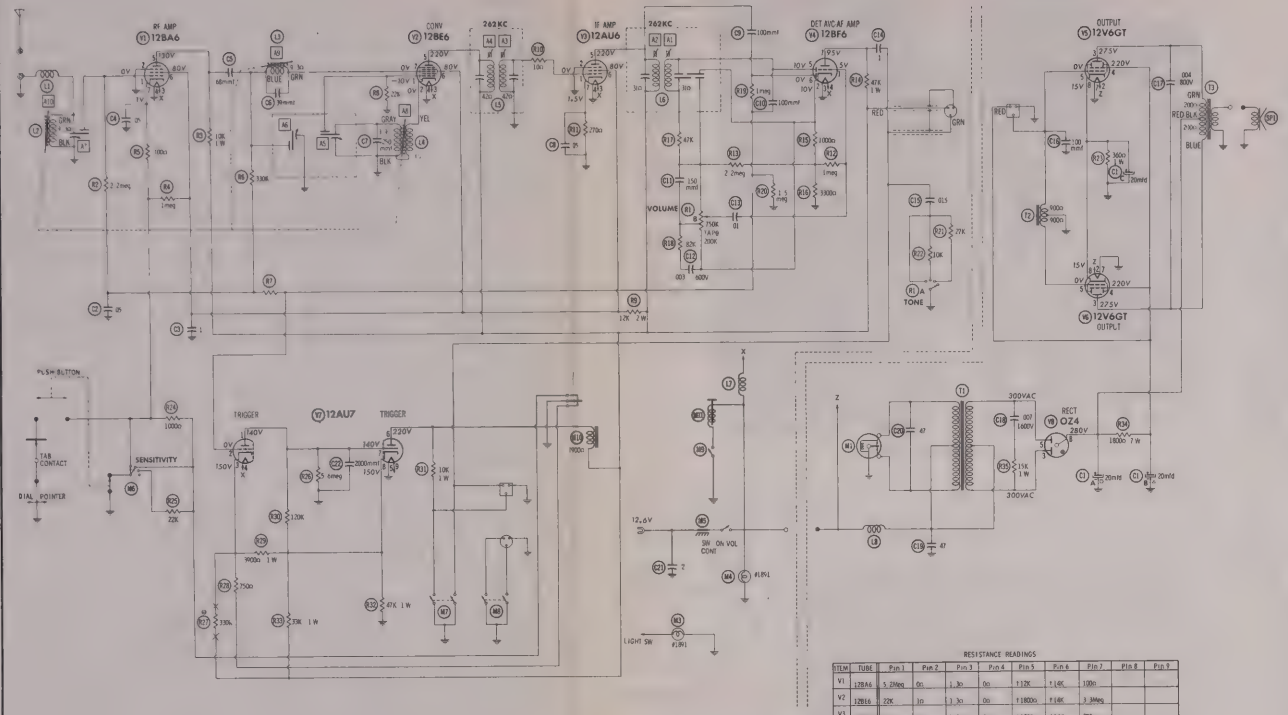
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				DELCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115∿	8550	6330	G883	6330	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA						NOTES
			DELCO PART No.		LITTELFUSE PART No.		BUSS PART No.		
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER	
M2		7½A	455640		30307.5 (7AG-7½A)		SFE 7½		

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M3	Dial Light		#1891
M4	Pilot Light		#1891 ("On") Indicator
M5	Spark Plate	1220682	
M6	Switch	7266279	Sensitivity
M7	Switch	7264300	Station Selector
M8	Switch	7260629	(Foot) Station Selector
M9	Switch	7263340	Tuner Return
M10	Relay	1220326	
M11	Solenoid	7267048	Includes Plunger
M12	Trimmer Cap.	7242454	Dual: A5 (Osc.), A6 (Ant.)
A7	Trimmer Cap.	7267034	Ant.
	Knob	522248	Sensitivity
	Knob	522253	On-Off-Volume & Tuning
	Knob	518915	Tone
	Board	7263916	Tuner Printed Circuit
	Contact	1220193	Pushbutton Slide (Set of 5)
	Contact	1220191	Selector Tab (Set of 5)



1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Measurements made from chassis to terminal.
3. Measurements were made under no signal conditions.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Required tolerance on components values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

● SEE PARTS LIST FOR ALTERNATE VALUE ON APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	5.2Meg	0Ω	1.3Ω	0Ω	†12K	†14K	100Ω		
V2	12BE6	22K	1Ω	1.3Ω	0Ω	†18000	†14K	3.3Meg		
V3	12AU6	80Ω	0Ω	1.3Ω	0Ω	†18000	†14K	270Ω		
V4	12BF6	1Meg	4300Ω	0Ω	1.3Ω	600K	2.5Meg	†50K		
V5	12V6GT	NC	0Ω	†280Ω	†1800Ω	900Ω	TP	1.3Ω	360Ω	
V6	12V6GT	NC	0Ω	†300Ω	†1800Ω	900Ω	TP	1.3Ω	360Ω	
V7	12AU7	†155K	1.[illegible]	45K	1.3Ω	0Ω	†36000	155K	40K	0Ω
V8	0Z4	TP	NC	220Ω	NC	220Ω	NC	TP	70K	

† MEASURED FROM PIN 8 OF V8.
NC NO CONNECTION
TP TIE POINT

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RCA VICTOR
MODEL 7-HF-5 (Ch. RS-158)

RCA VICTOR
MODEL 7-HF-5 (Ch. RS-158)

TRADE NAME	RCA Victor Model 7-HF-5 (Ch. RS-158)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AX7 AF Amp.-Phase Inv., (2) 50C5 Output
POWER SUPPLY	105-125 Volts AC - 60 Cycles RATING .34 Amp. @ 117 Volts AC

RECORD CHANGER UNIT - RCA VICTOR MODEL RP-205-2

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR
MODEL 7-HF-5

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V3	Output	50C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	102685	PRS150V8040	BBRT84215	TCT3117	TDLT-7	FMT-339	TVA-3455
B	50	150		20					
C	20	150							
C2	5	50	74521	SRE50V5	BBR550	TC30	TD-5-50	MMT-0505	TVA-1303
C3	8	10 VAC	100509	PRS-AC10VAC 8				MMT-0220 † MMT-0220 †	R2201*

† Connect negative leads together.
* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	.047	400	73553	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C5	1000	500	101700	1464-001		1R5D1	ED-1000	MCB255	MS-21	
C6	.01	200	73561	BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C7	.0018	600	77468	SI 1800	D6-182	TP55	GP-1800	UC-5218	5GA-D18	
C8	.033	200	79015	P288N-033		CUB6S33		GEM-4133	6TM-S33	
C9	.0022	600	73595	SI2200	D6-222	CUB6D22	GP-2200	GEM-6D22	6TM-D22	
C10	.056	400	73791					GEM-6156		
C11	.056	400	73791					GEM-6156		
C12	.1	400	73551	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C13	.047	400	73553	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.5Meg	½	102344	ABT-167			UDT-291	Volume Tap ② 250K & 500K
B	Shaft		Not Req.	AK-3			Not Req.	Attach to R1A
R2A	2Meg	½	102346	B-76	A47-2Meg-Z	Q13-139	U55	Bass
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	2Meg	½	102345	B-76	A47-2Meg-Z	Q13-139	U55	Treble
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A

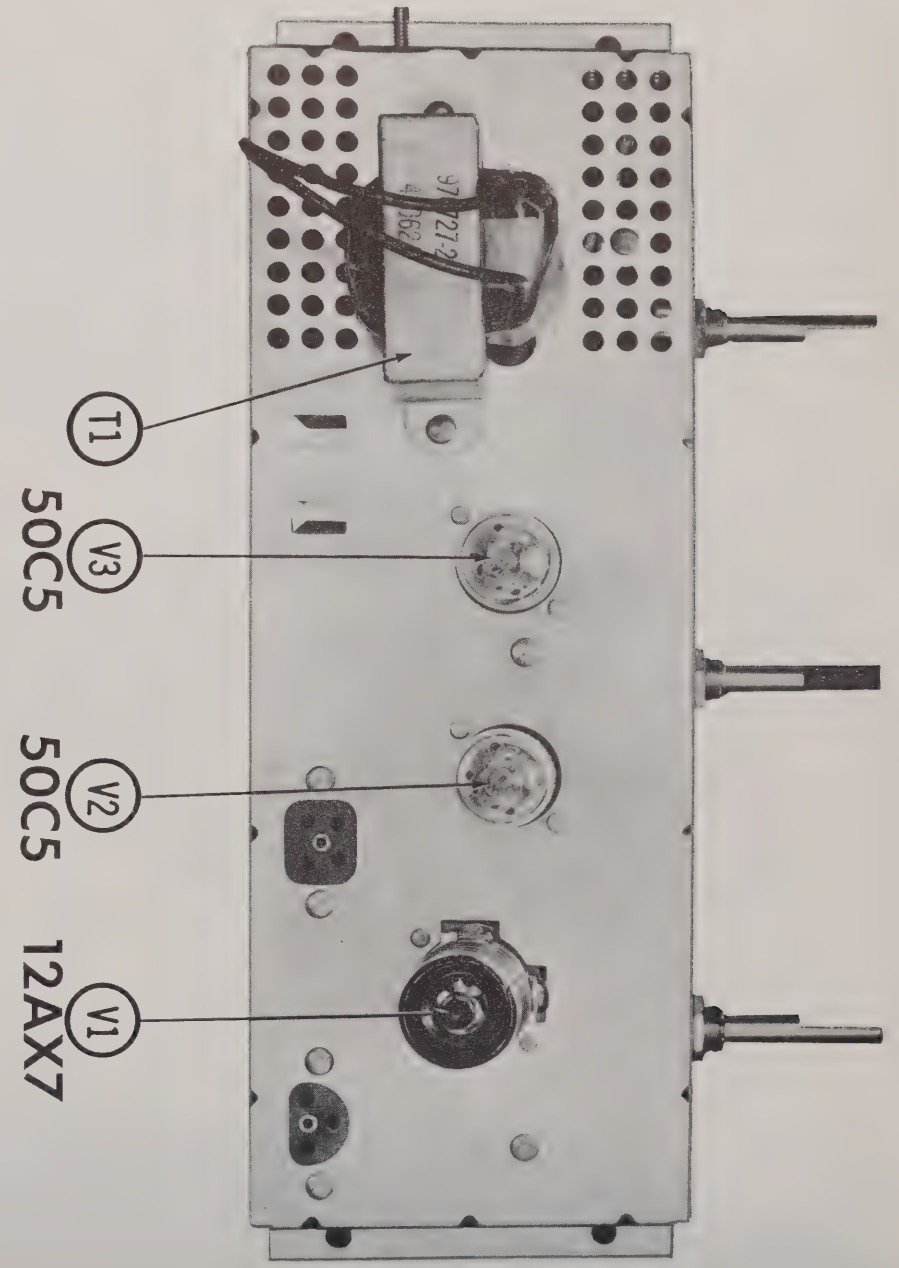
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R4	120K		502412	BTS-120K	
R5	180K		502418	BTS-180K	
R6	100K		502410	BTS-100K	
R7	12K		502312	BTS-12K	
R8	220K		502422	BTS-220K	
R9	220K		502422	BTS-220K	
R10	3900Ω		502239	BTS-3900	
R11	470K		502447	BTS-470K	
R12	470K		502447	BTS-470K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R13	12K		502312	BTS-12K	
R14	82Ω	1	512082	BTA-82	
R15	100K		502410	BTS-100K	
R16	820Ω	1	512182	BTA-820	
R17	100Ω	2	522110	BTB-100	
R18	33Ω	1	512033	BTA-33	
R19	15Ω	1	38859	BTA-15	
R20	15Ω	1	38859	BTA-15	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	4000Ω	3-4Ω	100466	Z1002	A-2901	A-3823	24S61	S-53X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6½"	PM	3-4Ω	100464	6A21	229S1	
SP2	3½"	PM	6.6Ω	100465	3A15TZ6.6		
SP3	3½"	PM	6.6Ω	100465	3A15TZ6.6		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	RCA Victor PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.100A	100654	1005A	RS150	6S150	6P2	150	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA Victor PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	100653	55-T	GD-J	56	PT-2	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

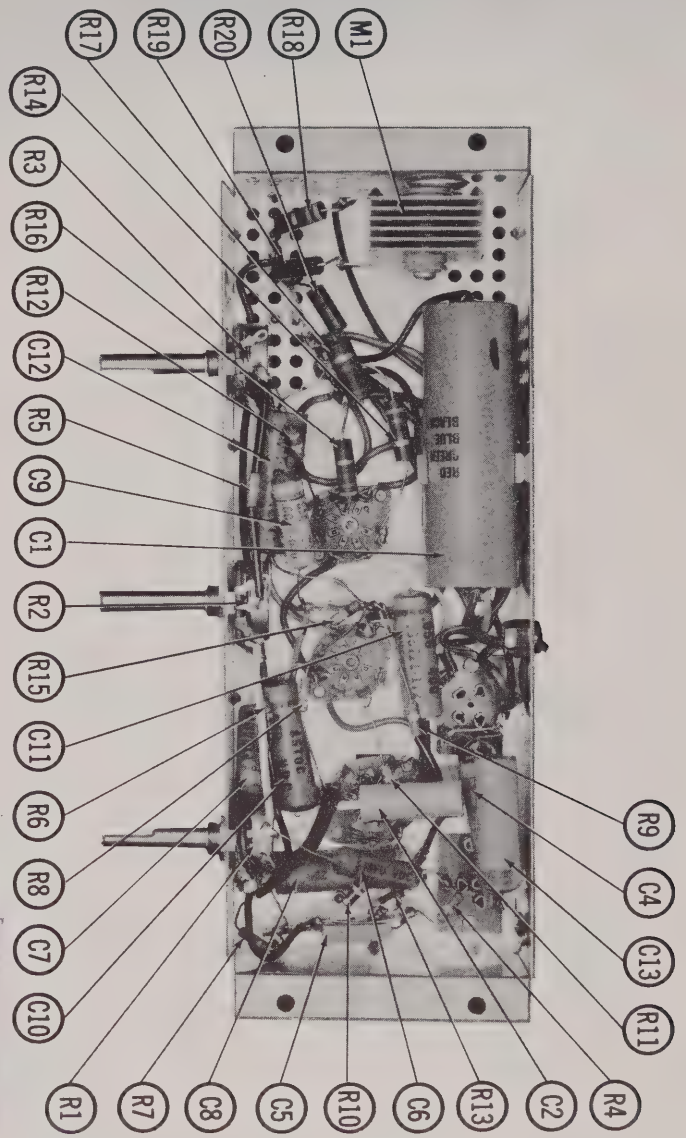
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	RCA Victor PART No.	JENSEN PART No.	WALCO PART No.	
M3		†S-66 or ♦†S-66SD or ♦S-66D	†W-75TPS or ♦†W-75DS or ♦W-75TPD	† Jewel ♦ Diamond

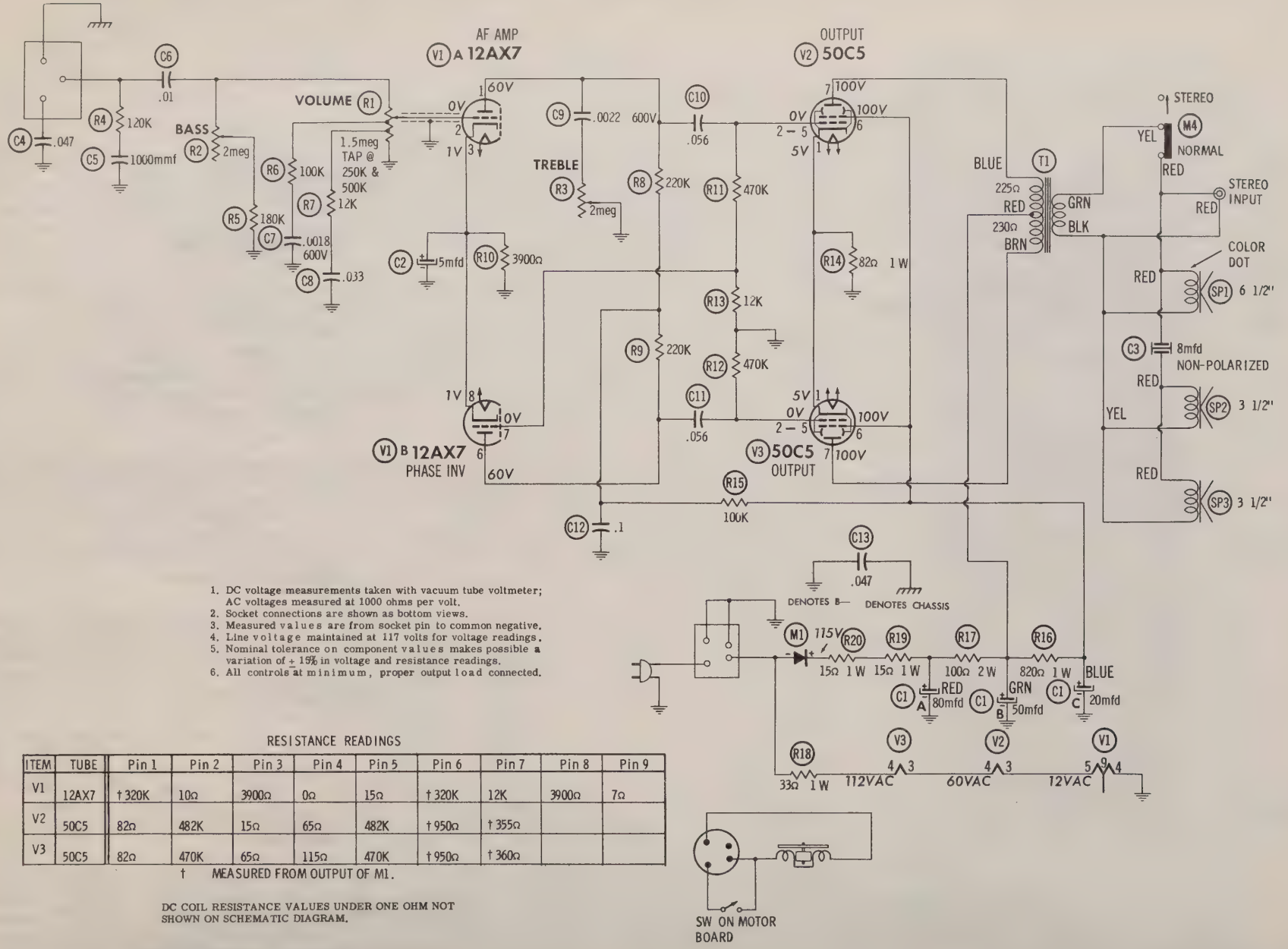
MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Switch Knob	100185 102347	Normal-Stereo (SPDT-Slide Type) Control (3 used)

CHASSIS—BOTTOM VIEW



RCA VICTOR MODEL 7-HF-5



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†320K	10Ω	3900Ω	0Ω	15Ω	†320K	12K	3900Ω	7Ω
V2	50C5	82Ω	482K	15Ω	65Ω	482K	†950Ω	†355Ω		
V3	50C5	82Ω	470K	65Ω	115Ω	470K	†950Ω	†360Ω		

† MEASURED FROM OUTPUT OF M1.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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*TRADE MARK

RETMA MEMBER

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

RCA Victor, Model 21-D-7425U (Ch. KCS104F)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21-T-7385, 21-T-7386, 21-T-7387	KCS104A
		24-D-7545, 24-D-7547, 24-D-7566, 24-D-7568	KCS104AA
		24-D-7547U, 24-D-7547U, 24-D-7566U, 24-D-7568U	KCS104AB
		24-D-7587	KCS104AC
		24-D-7587U	KCS104AD
		24-D-7705, 24-D-7706, 24-D-7708, 24-D-7726, 24-D-7728	KCS104AE
		24-D-7705U, 24-D-7706U, 24-D-7708U, 24-D-7726U, 24-D-7728U	KCS104AF
		21-T-7385U, 21-T-7386U, 21-T-7387U	KCS104B
		21-T-7415, 21-T-7416, 21-T-7417	KCS104C
		21-T-7415U, 21-T-7416U, 21-T-7417U	KCS104D
		21-D-7425, 21-T-7427	KCS104E
		21-D-7425U, 21-T-7427U	KCS104F
		21-D-7445, 21-D-7446, 21-D-7447, 21-D-7479, 21-D-7485, 21-D-7487, 21-D-7488	KCS104H
		21-D-7445U, 21-D-7446U, 21-D-7447U, 21-D-7479U, 21-D-7485U, 21-D-7487U, 21-D-7488U	KCS104J
		21-D-7505, 21-D-7506, 21-D-7507	KCS104K
		21-D-7505U, 21-D-7506U, 21-D-7507U	KCS104L

MANUFACTURER	Radio Corp. of America, RCA Victor Television Div., Camden 8, N. J.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING 1.78 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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RCA VICTOR MODELS 21-D-7425, U, 21-D-7427, U, 21-D-7445, U, 21-D-7446, U, 21-D-7447, U, 21-D-7479, U, 21-D-7485, U, 21-D-7487, U, 21-D-7488, U, 21-D-7505, U, 21-D-7506, U, 21-D-7507, U, 21-T-7385, U, 21-T-7386, U, 21-T-7387, U, 21-T-7415, U, 21-T-7416, U, 21-T-7417, U, 24-D-7545, U, 24-D-7547, U, 24-D-7566, U, 24-D-7568, U, 24-D-7587, U, 24-D-7705, U, 24-D-7706, U, 24-D-7708, U, 24-D-7726, U, 24-D-7728, U (Ch. KCS104A, AA, AB, AC, AD, AE, AF, B, C, D, E, F, H, J, K, L)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type control knobs from side panel.
2. Remove 2 wood screws and 2 metal clips. Remove rear cover.
3. Remove tuner power plug, tuner output cable, yoke plug, picture tube socket, HV lead and 2 speaker plugs.
4. Remove 2 metal screws holding volume control bracket to tuner assembly.
5. Remove 4 chassis hold down bolts from below chassis.
6. Remove chassis.
7. Remove 3 hex nuts holding tuner assembly to cabinet. Remove assembly.
8. Remove 8 speaker nuts. Remove 2 speakers.

MODEL	CHASSIS
21-D-7425U	KCS104F

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of VHF Tuner Oscillator, it is necessary to remove the chassis from the cabinet. (See Disassembly Instructions.)

PICTURE TUBE SAFETY GLASS CLEANING

To remove safety glass, pry off clip at bottom of metal trim, pry off trim beginning at bottom, straighten tabs on 9 metal fasteners, remove clip. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See Tube Placement Chart on Page 5.

SPECIAL ADJUSTMENTS

a) AGC Control

From a counter clockwise position, advance the AGC control (R8) until overloading is noted in the picture, then clockwise until the overloading disappears.

b) Sync Stabilizer Control

From a clockwise position, adjust the Sync Stabilizer (R7) until overloading is noted in the picture, then counter clockwise until the overloading disappears.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horizontal frequency coil is located on the control panel of the chassis and is used as the horizontal hold control. Adjust the horizontal hold control until the picture synchronized horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A15) located on bottom side of chassis.

FUSES

One fuse is used for Horiz. Sweep Circuit protection. (For location see Tube Placement Chart.)

CENTERING

Centering is accomplished mechanically by means of a centering lever on the P. M. Focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

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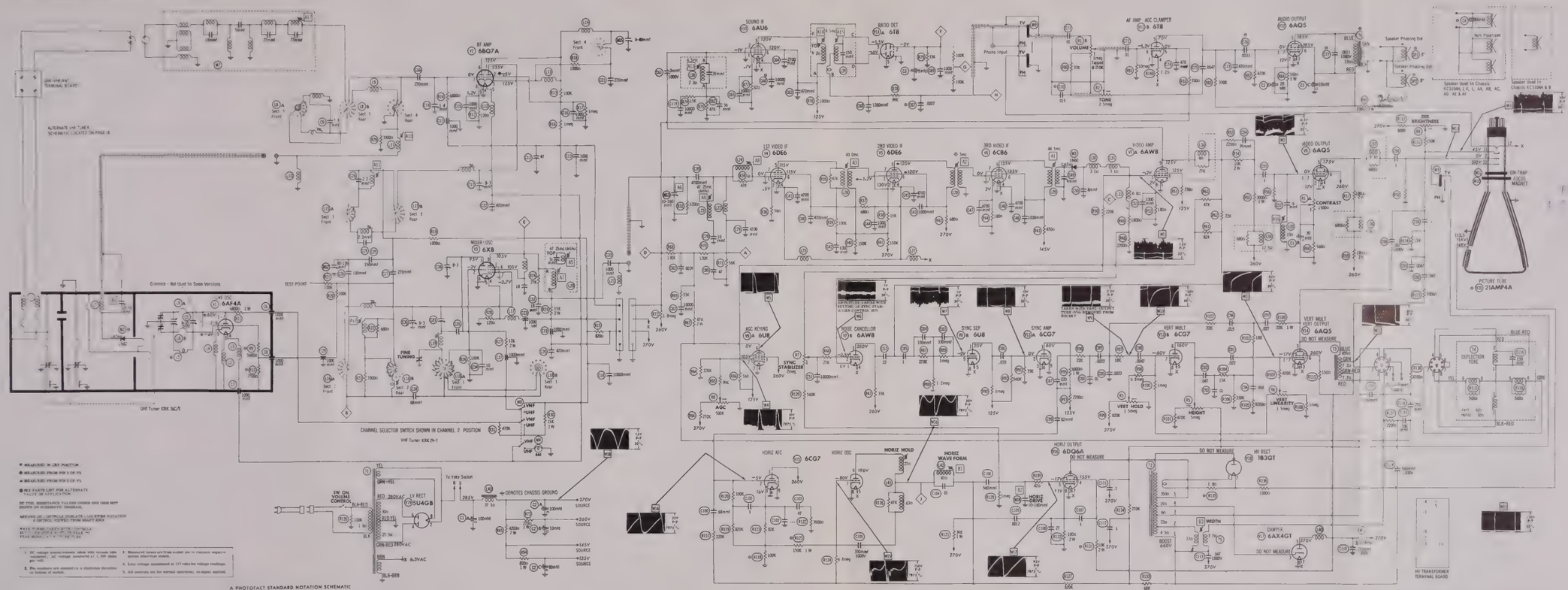

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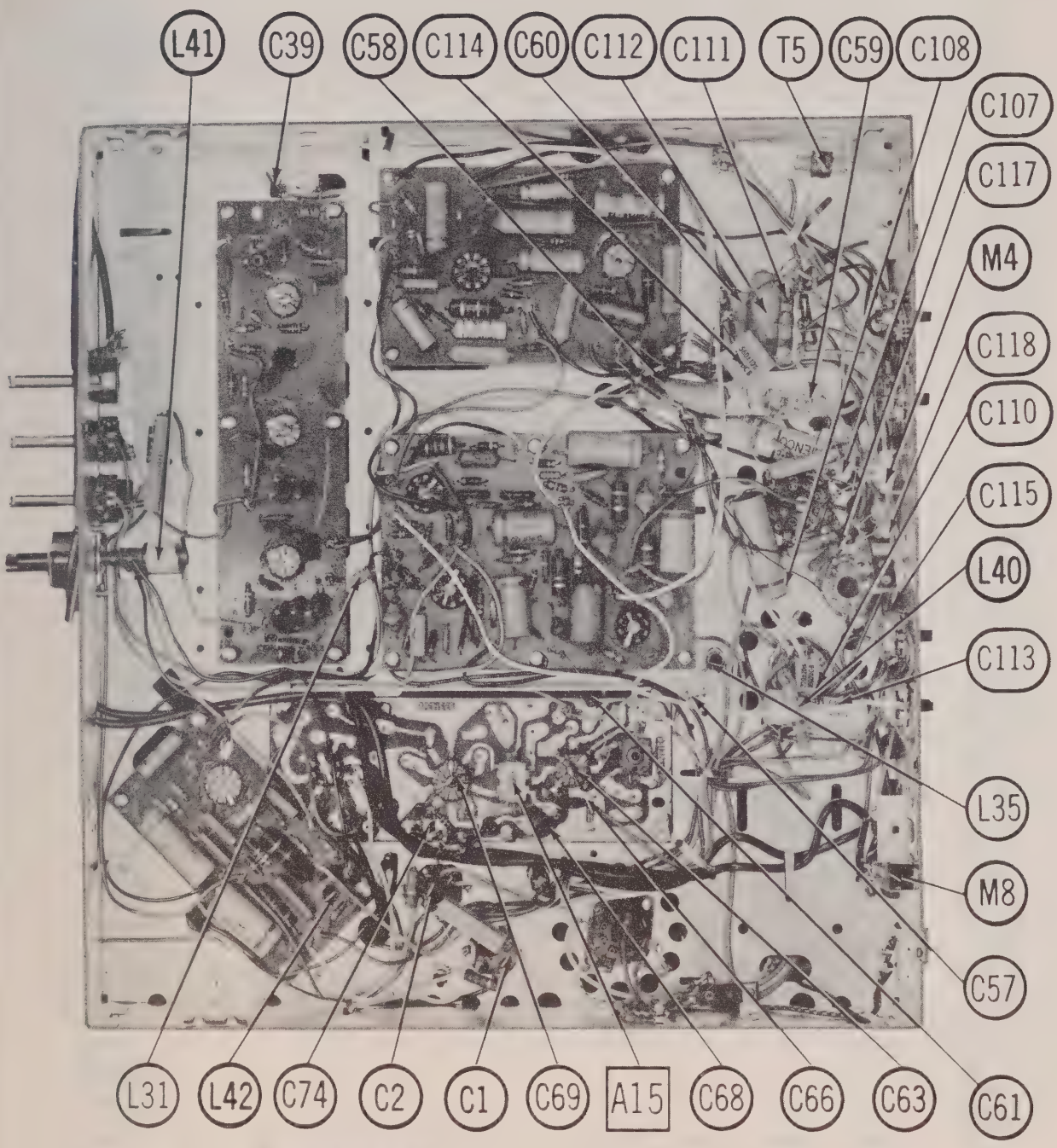

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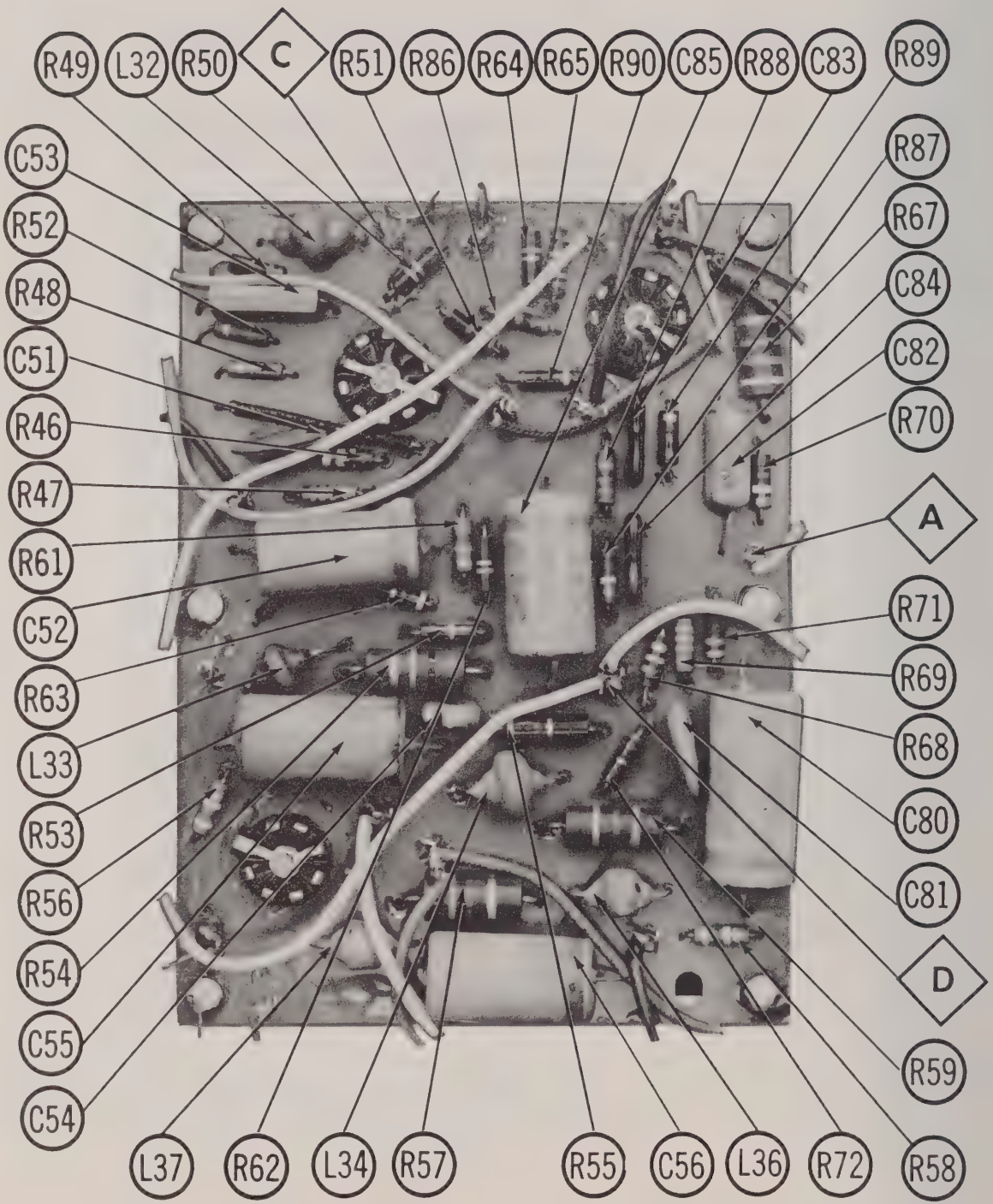
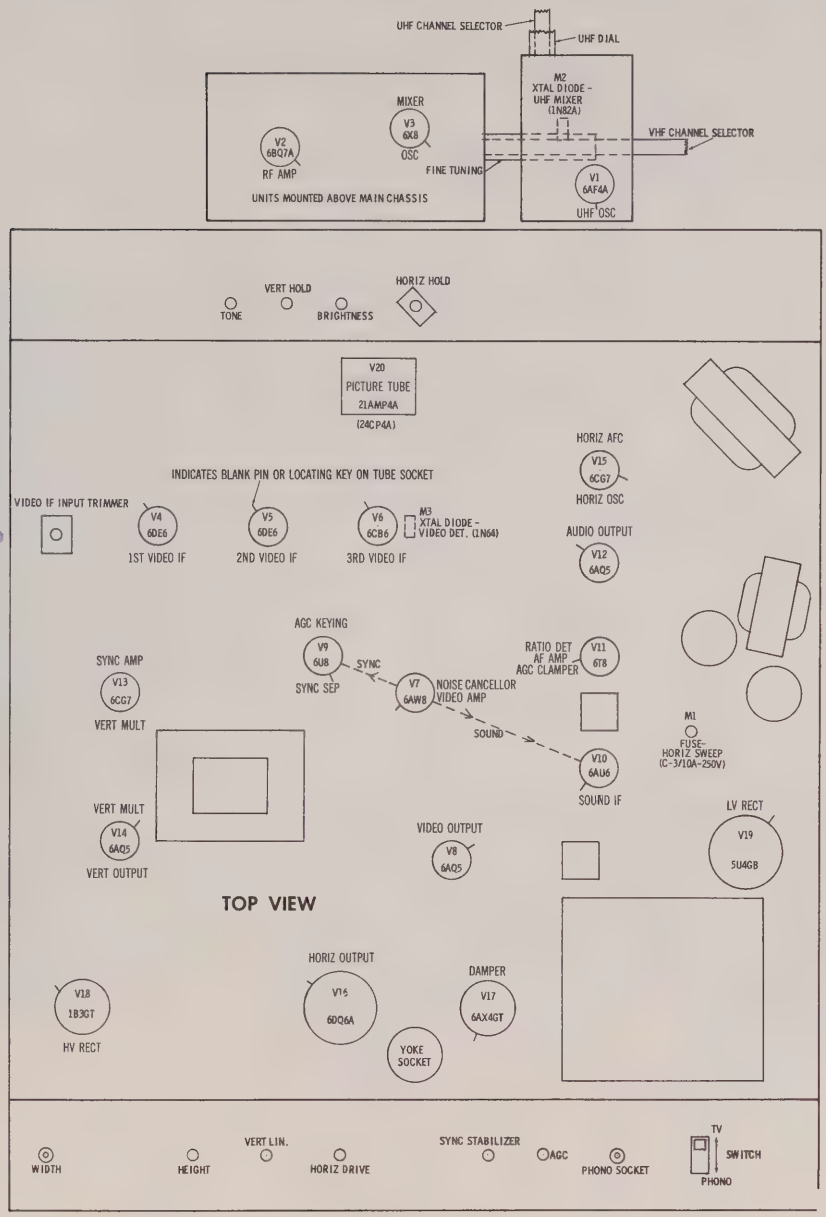
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

SET 346 FOLDER 11



VIDEO OUTPUT & SYNC PRINTED BOARD

TUBE PLACEMENT CHART



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TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V19

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, Diode (M3), V7, V8, V20
No pic, no sound, has snow - V2, V3, V4, V11, (UHF V1)
No pic, has sound, has raster - V7, V8, V20
Has pic, no sound - V10, V11, V12
Overloaded picture - V9

SYNC FAILURE
No vert. sync - V7, V9, V13
No horiz. sync - V7, V9, V13, V15
No vert. or horiz. sync - V7, V9, V13

SWEEP FAILURE
No raster, has sound - V15, V16, V17, V18, Fuse (M1)
No vertical deflection - V13, V14
Poor vert. linearity or foldover - V13, V14
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17, V19
Vert. off freq. - V13, V14
Horiz. off freq. - V15

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Turn sync stabilizer control fully clockwise.
Turn the AGC control fully clockwise.
Connect a 1000 ohm potentiometer across a 7.5 volt bias battery capable of providing an appreciable current flow. Connect the negative lead of the battery to point Ⓐ. Connect the positive lead to chassis. Adjust the bias battery for 5 volts at point Ⓐ.
If necessary, during the alignment reduce the signal to produce 3 volts at point Ⓒ with 5 volts at point Ⓐ.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to point Ⓑ. Low side to tuner chassis.	Not Used.	44.5MC	Any unused channel.	USE VTVM DC probe to point Ⓒ thru 10K. Common to chassis.	A1	Use only enough sweep generator output to provide usable indication on VTVM. Adjust for maximum deflection.
2.	"	"	"	45.5MC	"	"	A2	"
3.	"	"	"	43.0MC	"	"	A3	"
4.	"	"	"	47.25MC	"	"	A4, A5	Increase generator to maintain -3 volts on VTVM. Adjust for MINIMUM deflection.
5.	"	"	44.0MC	42.5MC 45.75MC	4	Vert. amp. of scope thru detector (Fig. 1) to pin 5 (plate) of V4. Low side to chassis.	A6, A7, A8	Connect a 180Ω resistor from plate to screen (pin 5 to 6) of 1st video IF amplifier tube (V4). Pre-set A6 (trimmer) to MINIMUM capacity. If separate signal generator is used for marker, loosely couple it to the detector probe in Fig. 1. Attenuate output of sweep generator to provide .5 volts peak to peak on scope. Adjust A7 and A8 for maximum gain with 45.75MC marker at 75% of maximum response as in Fig. 2. Adjust A6 to place 42.5MC marker at 70% on curve as in Fig. 2. Disconnect the 180Ω resistor. Remove scope and detector from V4.
6.	NONE	"	"	42.5MC 45.0MC 45.75MC	"	"		Adjust sweep output to provide 5 volts peak to peak on scope. If separate signal generator is used for marker, couple it loosely to pin 1 (grid) of 6DE6 (V4). Retouch A1, A2 and A3 if necessary, to obtain response curve similar to Fig. 3.
7.	"	"	"	41.25MC	"	"		Increase sweep generator output 10 times and retouch A1 and A3 if necessary, to set 41.25MC marker at approximately 5% on curve.

UHF IF ALIGNMENT FOR UHF MODELS

Leave bias connected as under "Video IF Alignment".
Obtain another 7.5 volt battery capable of withstanding an appreciable current drain and connect a 1000 ohm potentiometer across it.
Connect the potentiometer arm to point Ⓓ. Connect the positive side of the battery to chassis. Adjust the potentiometer to provide 3 volts bias at point Ⓓ.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.0015MFD and 1000Ω in series	Using shortest leads possible, connect high side to front terminal of 1N82 crystal holder thru .0015MFD and 1000Ω in series. Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC	Between 68 and 69.	Connect a 820Ω composition resistor in series with a .0015MFD capacitor between pin 1 (plate) of 6BQ7A (V3) and chassis with the resistor next to chassis. (Pin 1 of V3 is accessible through a hole in the left side of the tuner.) Connect the vertical amplifier of the scope thru detector probe (Fig. 1) to the junction of the capacitor and resistor. Low side to chassis.	A9, A10	Set the sweep generator to provide .5 volts or less peak to peak on the oscilloscope. Adjust A9 and A10 for maximum gain with the markers positioned as shown in Fig. 4.
9.	"	"	"	"	"	Move detector (Fig. 1) to point Ⓔ. Low side to chassis.	A11, A12	Adjust for response similar to Fig. 4.
10.	Two 130Ω carbon resistors	Across VHF antenna terminals with 130Ω in each lead.	"	"	"	Remove resistor and capacitor (step 8). Vert. amp. thru 10K to point Ⓒ. Low side to chassis.		Adjust sweep generator output to provide 3 volts peak to peak on scope. Set AGC bias at -3 volts and IF bias at -5 volts. If separate signal generator is used for marker, loosely couple to grid circuit of V4. Switch thru all VHF channels and check for proper curve shape as shown in Fig. 3. Retouch A1 and A2 if necessary, to obtain proper tilt.

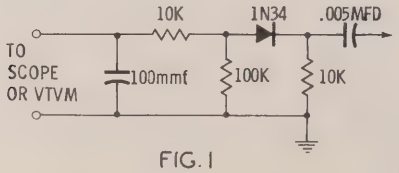


FIG. 1

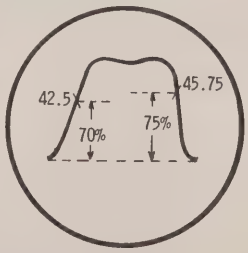


FIG. 2

ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (F) to chassis. The junction of these two resistors is alignment point (G) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.01MFD	High side to point (C). Low side to chassis.	4.5MC (unmod)	Any unused channel.	DC probe to point (F). Low side to chassis.	A14, A15	Adjust for maximum deflection. Peak A14 with core farthest away from chassis. The output of signal generator should be at such a level as to produce a reading of 10 to 12 volts on VTVM at point (F) after peaking adjustments.
12.	"	"	"	"	"	A13	Adjust for maximum deflection. Adjust signal generator to produce 10 to 12 volts on VTVM at point (F) when final touches on A13 are made.
13.	"	"	"	"	DC probe to point (H). Common to point (G).	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Connect a clip lead from pin 1 (grid) of the 3rd video IF amplifier (V6) to chassis. Set the contrast control fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	.01MFD	High side to point (C). Low side to chassis.	Not Used	4.5MC (30% 400~ AM Mod)	Any	Vert. amp. thru detector probe (Fig. 1) to pin 2 (grid) of picture tube. Low side to chassis.	A16	Adjust for MINIMUM 400~ indication on scope. Remove the short from V6.

FM TRAP ALIGNMENT

Tune in a local TV station on which interference is noted. Adjust A17 for MINIMUM interference in picture.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

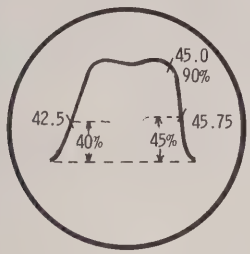


FIG. 3

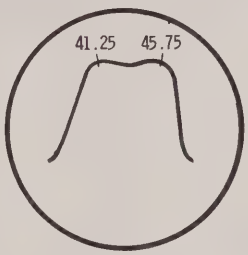
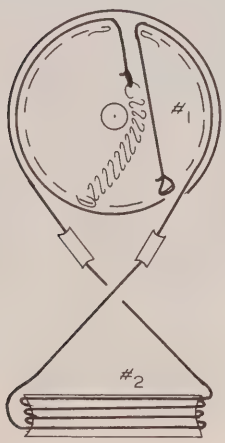


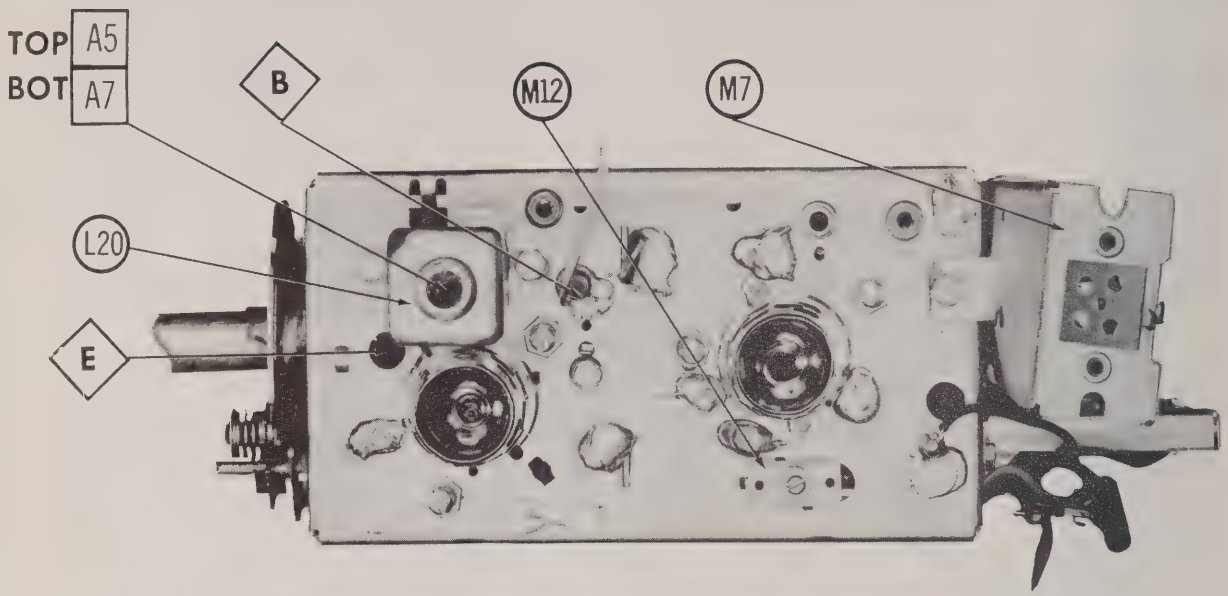
FIG. 4

VHF FINE TUNING PULLEY #1 IN MAX. CLOCKWISE POSITION.

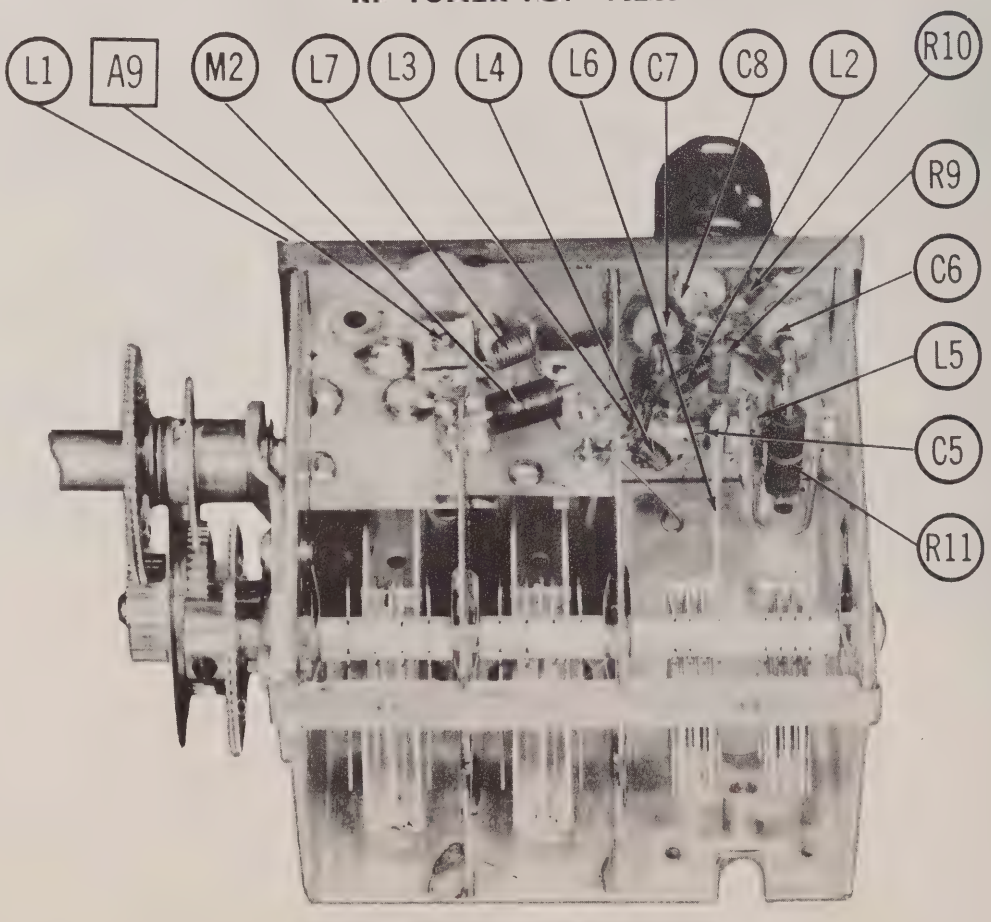


VHF FINE TUNING CORD DRIVE

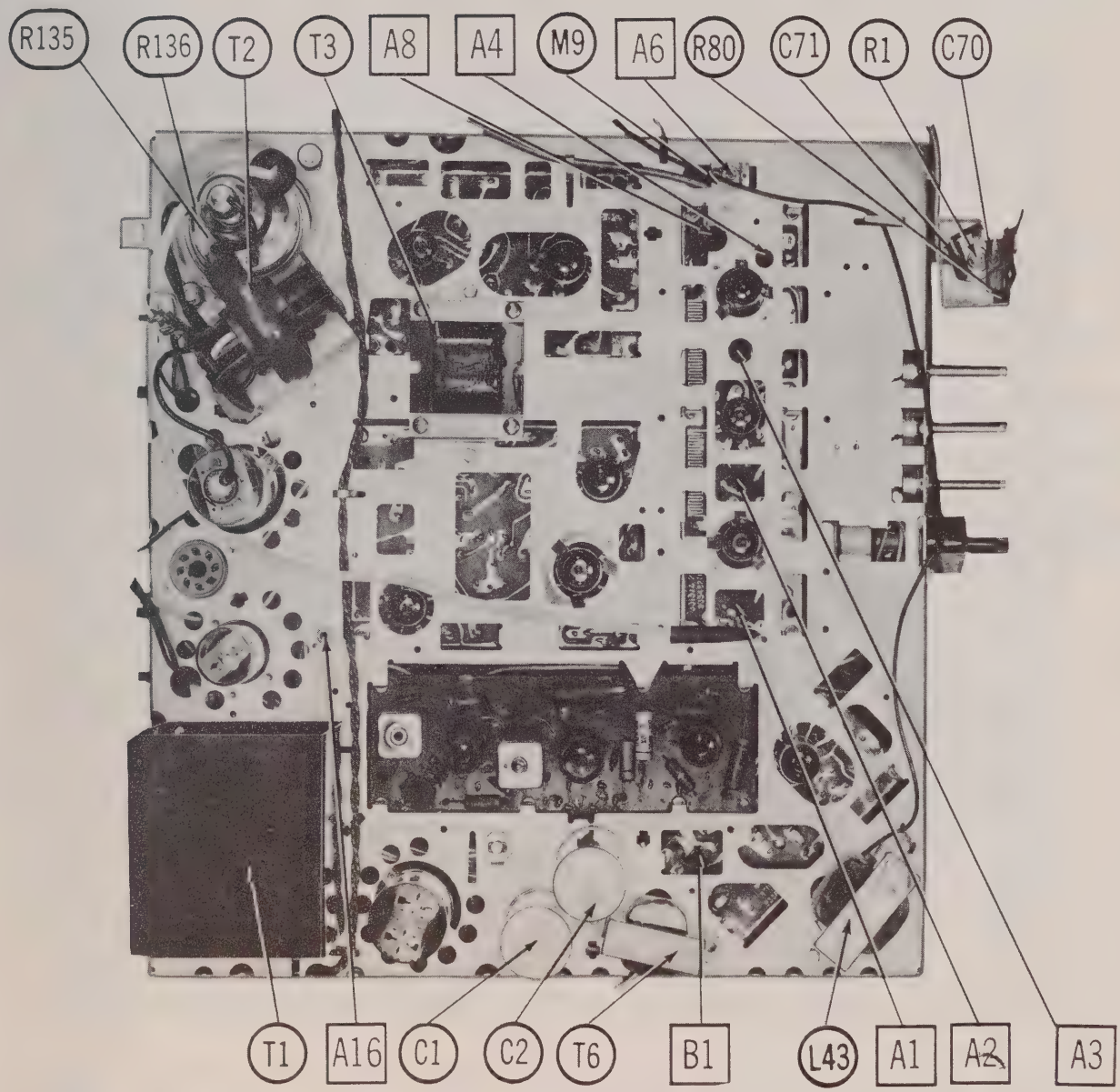
DRIVE CORD STRINGING



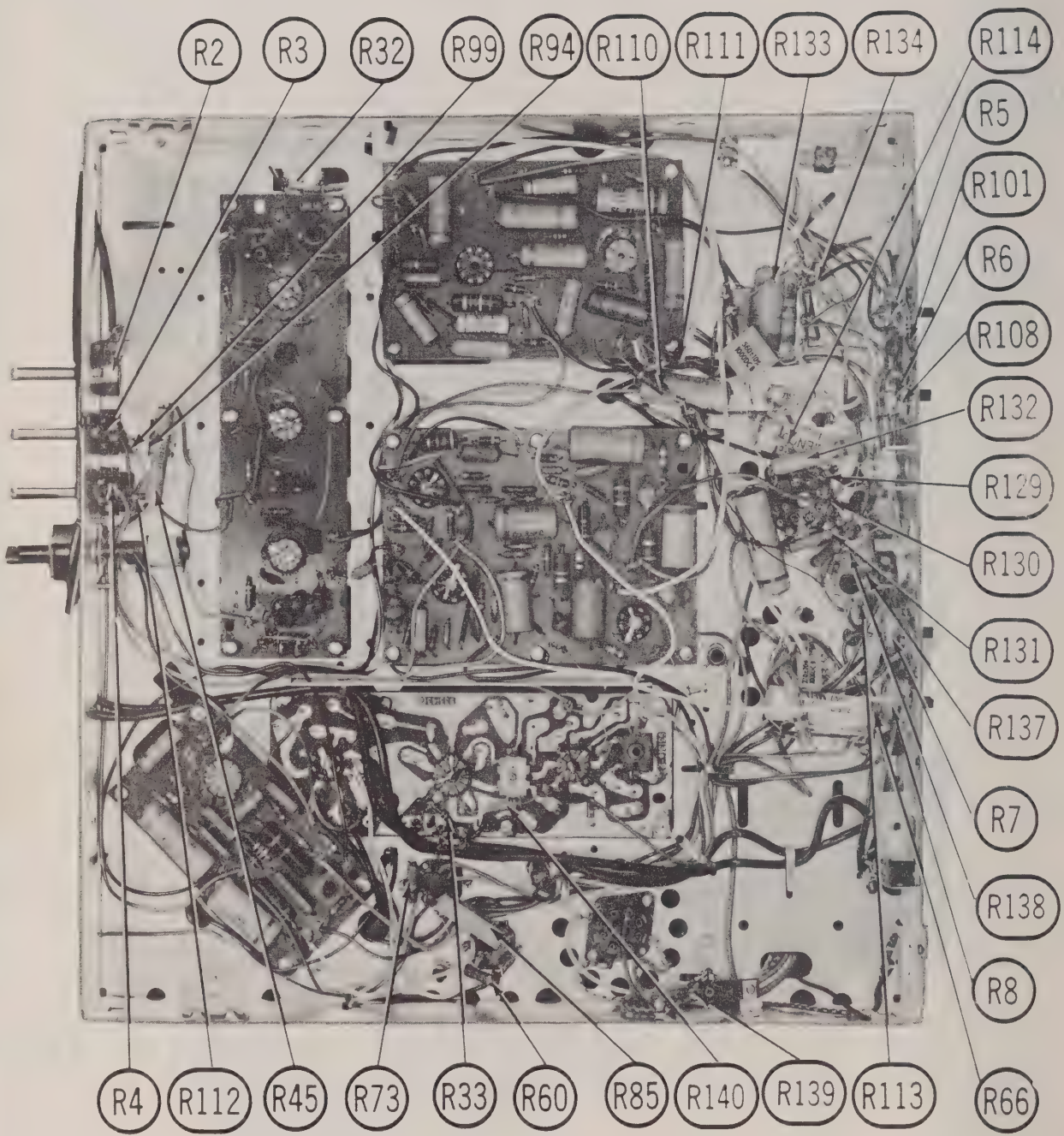
RF TUNER-TOP VIEW



UHF TUNER SIDE VIEW



ALIGNMENT IDENTIFICATION



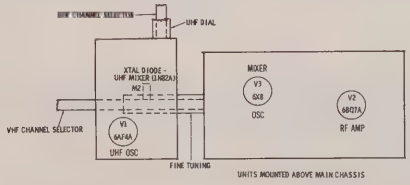
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

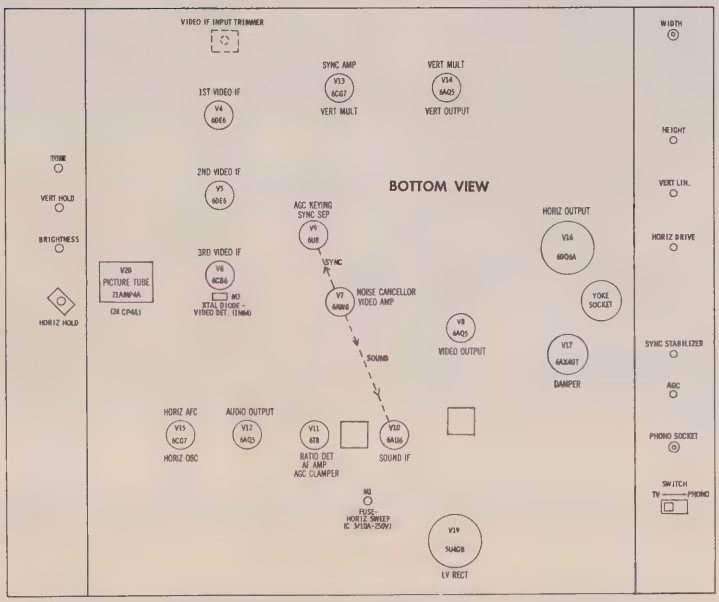
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	°† 22K	7500Ω	0Ω	.1Ω	.1Ω	7500Ω	°† 22K		
V2	6BQ7A	† 1800Ω	† 500K	† 550K	0Ω	.1Ω	† 550K	270K	120Ω	0Ω
V3	6X8	0Ω	100K	† 12K	.1Ω	0Ω	0Ω	100K	† 16K	† 16K
V4	6DE6	50K	56Ω	0Ω	.1Ω	▲ 680Ω	▲ 680Ω	0Ω		
V5	6DE6	† 90K	† 90K	0Ω	.1Ω	† 680Ω	† 680Ω	90K		
V6	6CB6	.1Ω	180Ω	0Ω	.1Ω	† 4500Ω	† 4500Ω	0Ω		
V7	6AW8	2200Ω	● 900K	† 33K	.1Ω	0Ω	180Ω	4000Ω	† 5300Ω	† 12K
V8	6AQ5	470K	● 600Ω	0Ω	.1Ω	† 3900Ω	† 270Ω	470K		
V9	6U8	● † 1Meg	● † 18K	† 270Ω	0Ω	.1Ω	220K	† 5000Ω	0Ω	2.2Meg
V10	6AU6	47K	0Ω	0Ω	.1Ω	† 6000Ω	† 6000Ω	82Ω		
V11	6T8	INF	33K	INF	.1Ω	0Ω	270K	0Ω	10Meg	† 330K
V12	6AQ5	470K	560Ω	.1Ω	0Ω	† 3500Ω	† 3300Ω	470K		
V13	6CG7	† 15K	33K	0Ω	0Ω	.1Ω	● † 1.3Meg	● 2Meg	0Ω	0Ω
V14	6AQ5	● 1.8Meg	0Ω	.1Ω	0Ω	† 495Ω	† 200Ω	● 1.8Meg		
V15	6CG7	† 38Ω	1.2Meg	180K	0Ω	.1Ω	† 35K	250K	0Ω	
V16	6DQ6A	TP	0Ω	NC	† 10K	700K	TP	.1Ω	100Ω	TOP CAP ‡ 19Ω
V17	6AX4GT	NC	NC	750K	NC	† 38Ω	NC			
V18	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡ 370Ω
V19	5U4B	NC	45K	NC	27Ω	NC	30Ω	NC	45K	
V20	21AMP4A	0Ω	470K	Pin 10 850K	Pin 11 ● † 180K	Pin 12 .1Ω				

† MEASURED FROM PIN 2 OF V19.
▲ MEASURED FROM PIN 2 OF V5.
‡ MEASURED FROM PIN 3 OF V17.
° MEASURED IN UHF POSITION .
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

NC NO CONNECTION
TP TIE POINT

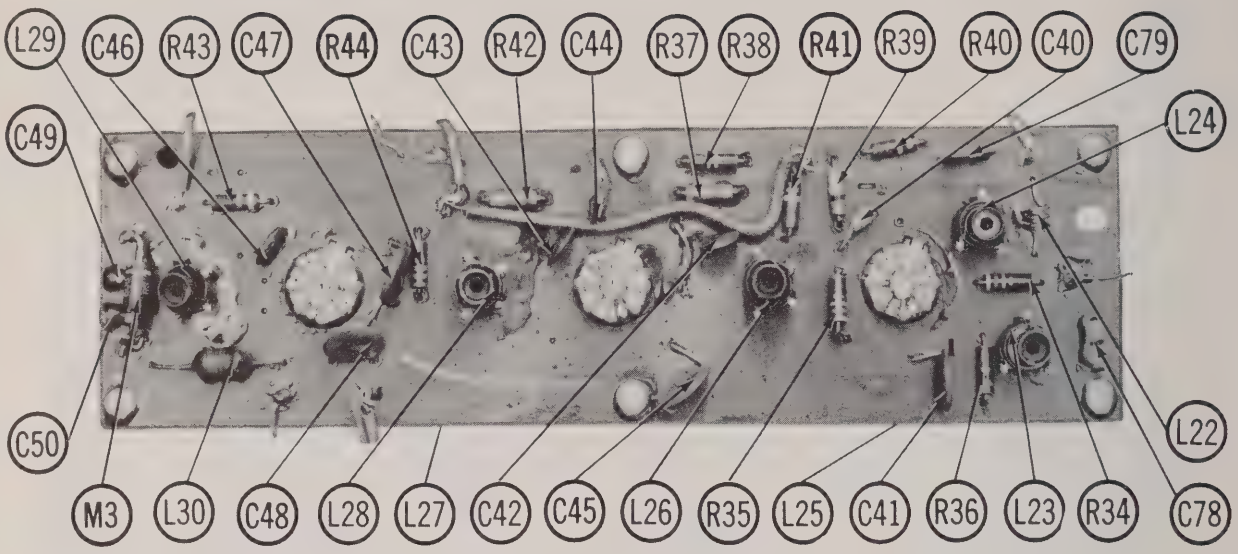




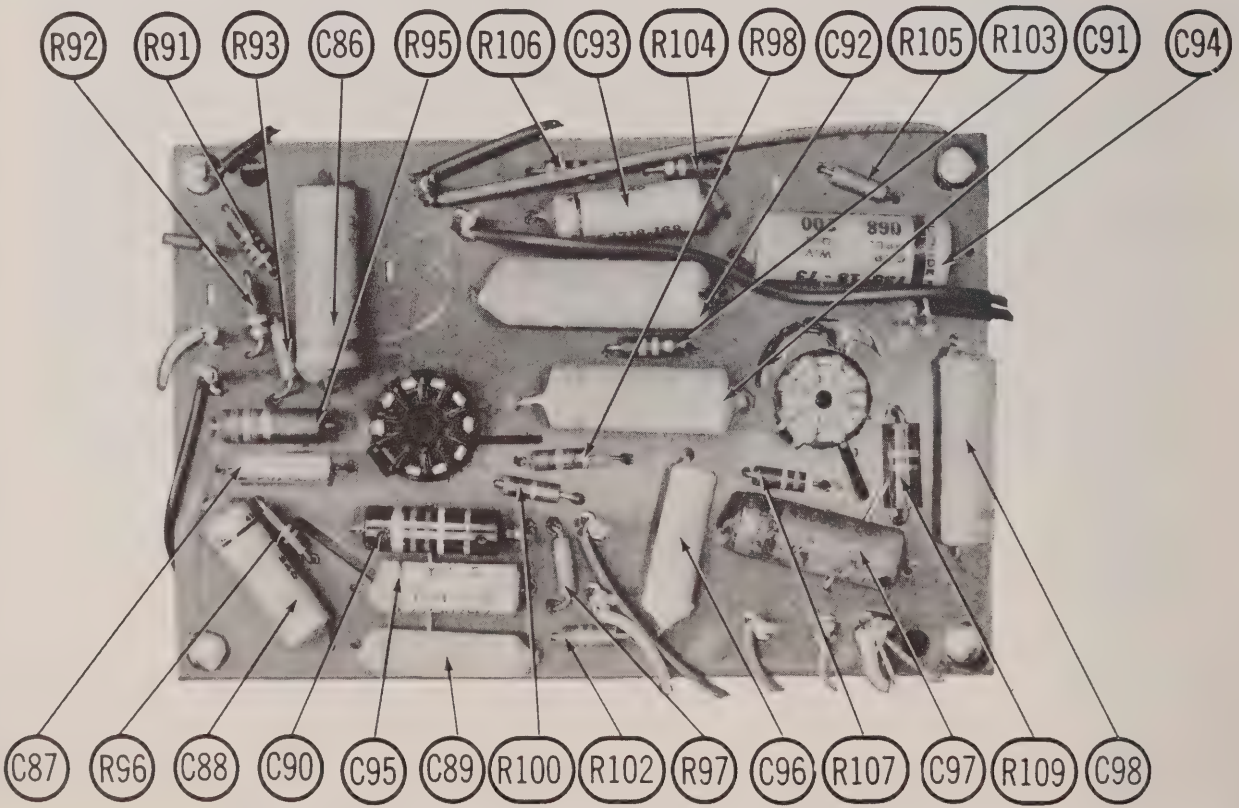
TUBE PLACEMENT CHART

SET 346 FOLDER 11

RCA VICTOR MODELS 21-D-7425, U, 21-D-7427, U, 21-D-7445, U, 21-D-7446, U, 21-D-7447, U, 21-D-7479, U, 21-D-7485, U, 21-D-7487, U, 21-D-7488, U, 21-D-7505, U, 21-D-7506, U, 21-D-7507, U, 21-T-7385, U, 21-T-7386, U, 21-T-7387, U, 21-T-7415, U, 21-T-7416, U, 21-T-7417, U, 24-D-7545, U, 24-D-7547, U, 24-D-7566, U, 24-D-7568, U, 24-D-7587, U, 24-D-7705, U, 24-D-7706, U, 24-D-7708, U, 24-D-7726, U, 24-D-7728, U (Ch. KCS104A, AA, AB, AC, AD, AE, AF, B, C, D, E, F, H, J, K, L)



VIDEO IF PRINTED BOARD



VERTICAL & SYNC PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Osc.	6AF4A	
V2	RF Amp.	6BQ7A	
V3	Mixer-Osc.	6X8	
V4	1st Video IF Amp.	6DE6	
V5	2nd Video IF Amp.	6DE6	
V6	3rd Video IF Amp.	6CB6	
V7	Noise Cancellor-Video Amp.	6AW8	
V8	Video Output	6AQ5	
V9	AGC Keying-Sync Separator	6U8	
V10	Sound IF Amp.	6AU6	

ITEM No.	USE	TYPE	NOTES
V11	Ratio Det. -AGC Clamper-AF Amp.	6T8	
V12	Audio Output	6AQ5	
V13	Sync Amp. -Vert. Mult.	6CG7	
V14	Vert. Mult. -Vert. Output	6AQ5	
V15	Horiz. AFC-Horiz. Osc.	6CG7	
V16	Horiz. Output	6DQ6A	
V17	Damper	6AX4GT	
V18	HV Rectifier	1B3GT	
V19	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	RCA Victor PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V20	21AMP4A	21AMP4A ①	21AMP4A/21ACP4A ①	21AMP4A② 21ACP4A②	① Aluminized ② Silver Screen "85"
		21AMP4	21AMP4/21ACP4	21AMP4 21ACP4	
	24CP4A	24CP4A/ 24TP4 ①	24CP4A ①	24CP4A ②	
			24CP4	24CP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲100	400	100858	AFHS4-57-90	CO894	FP389.1		T-175	TVL-4663.5
B	▲30	50			BR5015	TC47		CSD-500	
C	■10	400							
D	20	50							
C2A	▲100	400	100859-A	AFH4-94-90	CO896	FP385.5	TMT-187	D-390	TVL-3689.3
B	■10	400				TC79		D-195	
C	▲80	350							
C3	5	50	78943	PRS50V5	BBR5-50	TC30	TD-5-50	MMT-0505	TVA-1303
C4	8	10	102847 (Note 1)						

Note 1: Non polarized unit. Not used in some versions.

PROPERTY OF
L. F. BLANKENSHIP

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	.8-3.5		79556				532-A			
C6	1000		79559	EF-001	MFT-1000				503C-D1	
C7	1000		79559	EF-001	MFT-1000				503C-D1	
C8	1000		79559	EF-001	MFT-1000				503C-D1	
C9	3.3		71503	NP0-SI3.3	D6-030	Z008	TCO-3.3	ZT-5533	5TCCB-V33	
C10	270		77838	SI270	D6-271	G054	ED-270	UC-5327	5GA-T27	
C11	1000		77084	EF-001	MFT-1000				503C-D1	
C12	.47	200	101808	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C13	1000		77252	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C14	1-4		76532		829-4		3115-E	CT551		
C15	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C16	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C17	.8-3		77151		829-3		3115-D	CT565A		
C18	10000		73960	BPD-01	DD-103	K082	GP-10000	DC511	5HK-S1	
C19	1000		77084	EF-001	MFT-1000				503C-D1	
C20	470		77293	BPD-00047	DD-471	K069	ED-470	UC-5347	5GA-T47	
C21	270		77838	SI 270	D6-271	G054	ED-270	UC-5327	5GA-T27	
C22	470		77293	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C23	1000		77084	EF-001	MFT-1000				503C-D1	
C24	2.2		71502	NP0-SI2.2	TCZ-2R2	Z006	TCO-2.2		5TCCB-V22	
C25	150		78276	SI 150	D6-151	G046	ED-150	UC-5315	5GA-T15	
C26	100			SI 100	D6-101	G042	ED-100	UC-531	5GA-T1	
C27	270		77838	SI 270	D6-271	G054	ED-270	UC-5327	5GA-T27	
C28	2.2		71502	NP0-SI2.2	TZR-2R2	Z006	TCO-2.2		5TCCB-V22	
C29	1000		77084	EF-001	MFT-1000				503C-D1	
C30	.8-3		77151		829-3		3115-D	CT565A		
C31	.8-3		77913		829-3		3115-D	CT565A		
C32	18									
C33	1000			SI 1000	D6-102	BYA6D1	GP-1000	DC521	5HK-D1	
C34	10		78247	SI 10	D6-100	L10Q1	GP-10	UC-541	5GA-Q1	
C35	10		77865	SI 10	D6-100	L10Q1	GP-10	UC-541	5GA-Q1	
C36	.8-3		77151		829-3		3115-D	CT565A		
C37	1000		77084	EF-001	MFT-1000				503C-D1	
C38	.68		71504		TCZ-R68	TZ02	TCO-.68			
C39	4700		73473	BPD-0047	DD-472	K079	GP-4700	UC-5247	5HK-D47	
C40	470		78622	BPD-00047	DD-471	K060	ED-15	UC-5415	5GA-Q15	
C41	4700		73473	BPD-0047	DD-472	K079	GP-4700	UC-5247	5HK-D47	
C42	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C43	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C44	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C45	4700		73473	BPD-0047	DD-472	K079	GP-4700	UC-5247	5HK-D47	
C46	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C47	4700		73473	BPD-0047	DD-472	K079	GP-4700	UC-5247	5HK-D47	
C48	4700		73473	BPD-0047	DD-472	K079	GP-4700	UC-5247	5HK-D47	
C49	9		102647							
C50	8		101439			G015			5GA-V8	
C51	10000		73960	BPD-01	DD-103	K082	GP-1000	DC511	5HK-S1	
C52	.22	200	79740	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C53	1000		102456	1464-001		1R5D1		MC255	MS-21	
C54	39		102694	SI39	DD-390	G031	ED-39	UC-5439	5GA-Q39	
C55	.1	600	79149	P688N-1		CUB6P1		GEM-601	6TM-P1	
C56	.1	600	79149	P688N-1		CUB6P1		GEM-601	6TM-P1	
C57	9		102516							
C58	.1	400	73551	P488N-1		CUB4P1		GEM-401	4TM-P1	
C59	.0047	400	79017	BPD-0047		CUB4D47		GEM-4247	4TM-D47	
C60	.047	400	73553	BPD-05		CUB4S47		GEM-4147	4TM-S47	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	IRC PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C61	3	1000	102415	MPO-D13				ET-553		
C62	56		102207	MICA	D6-560		ED-56	UC-5456	5GA-4256	
C63	470		7H632	BPD-00047	DD-471	KD-60	ED-470	UC-5347	5GA-T47	
C64	3700		102333	MICA	D6-372	K075	GP-3700	UC-1327	5GA-D27	
C65	10000		7H680	BPD-01	DD-103	K042	GP-10000	DC51	5HK-61	
C66	10000		7J393	BPD-01	DD-103	K042	GP-10000	DC51	5HK-61	Note 4
C67	.0027	600	102640	MICA		CUB4D27		GEM-4327	4TM-D27	Note 3
C68	2200		102332	SI 1200	D6-122	G070	ED-1200	UC-5213	5GA-D12	
C69	1000		7J252	BPD-001	DD-102	K049	ED-1000	DC52	5HK-41	
C70	510	400	7J253	BPD-013		CUB4D15		GEM-4115	4TM-D15	Note 3
C71	.01	200	102000	BPD-01		CUB2S1		GEM-215	2TM-S1	
C72	.01	200	102000	BPD-01		CUB2S1		GEM-215	2TM-S1	
C73	470		7H622	BPD-00047	D6-372	KD-60	ED-470	UC-5347	5GA-T47	
C74	470		7J720	BPD-00047	D6-372	KD60	ED-470	UC-5347	5GA-T47	
C75	.0047	400	7J930	BPD-0047		CUB4D47		GEM-4247	4TM-D47	
C76	.0033	400	107425	BPD-0033	D6-332	CUB4D33		GEM-4233	4TM-D33	Note 5 & 6
C77	.0033	1000	7J733	P2888-0033	DD-332	CUD1D33		GEM-10D33	P2888-0033	Note 7
C78	10		102648	SI 10	DD-100	G018	ED-10	UC-541	5GA-Q1	
C79	4700		7J473	BPD-0047	DD-472	K079	GP-4700	UC-5247	5GA-D47	
C80	.47	200	100299	P288N-47		CUB2P47		GEM-2347	2TM-P47	
C81	10000		7J680	BPD-01	DD-103	K042	GP-10000	DC51	5HK-61	
C82	.0033	400	102318	BPD-004	D6-402	CUB4D33		GEM-4233	4TM-D33	
C83	330		102356	BPD-00033	DD-331	G056	ED-330	UC-5333	5GA-T33	
C84	330		102356	BPD-00033	DD-331	G056	ED-330	UC-5333	5GA-T33	
C85	.1	600	7H149	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C86	.033	400	7J532	BPD-03	DF-303	CUB4S33		GEM-4333	4TM-S33	
C87	.027	600	100303	BPD-03	DF-303	CUB6S27		GEM-6127	6TM-S27	
C88	.001	1KV	7J843	P1838N-001		CUB1D1		GEM-1G81	1TM-S1	
C89	82		7H674	1469-00082				MS-468	MS-468	
C90	68		7H475	1469-00068				MS-468	MS-468	
C91	.1		7J531	P688N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C92	.033	400	7J633	BPD-03	DF-303	CUB4S33		GEM-4123	4TM-S33	
C93	.047	200	100299	P288N-47		CUB2P47		GEM-2347	2TM-P47	
C94	.01	600	7J594	BPD-01	DD-103	CUB6S1		GEM-611	6TM-S1	
C95	330	1000	7H678	1469-00033				MS-359	MS-359	
C96	150		7H680	1467-00056				MS-356	MS-356	
C97	.1	600	7J531	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C98	.27	200	7H679	P288N-27		CUB2P27		GEM-2027	2TM-P27	
C99	.0012	600		BPD-001	D6-122	CUB6D12		GEM-6212	6TM-D12	
C100	910	1000	7H678	1469-00091				MS-359	MS-359	
C101	.1	400	7J531	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C102	.1	400	7J531	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C103	.047	1000	73597	P1838N-047		CUB1S647		GEM-1G147	1TM-S47	
C104	560	1000	7A250	1467-00056				MS-356	MS-356	
C105	330		102395	BPD-00033	DD-331	G056	ED-330	UC-5333	5GA-T33	
C106	150			SI 150	DD-151	G046	ED-150	UC-5153	5GA-T15	
C107	150		100453	SI 150	DD-151	G046	ED-150	UC-5315	5GA-T15	
C108	270		100104	SI 270	DD-271	G054	ED-270	UC-5327	5GA-T27	
C109	.0022		73960	BPD-01	DD-103	DYA5S1		DC-103	5HK-61	

Note 2: A 1000MMF is used in this application in chassis KCS104H, K, J, L, AA, AB, AC, AD, AE and AF

Note 3: A 82MMF is used in this application in chassis KCS104H, K, J, L, AA, AB, AC, AD, AE, and AF.

Note 4: A 470MMF is used in this application in chassis KCS104H, K, J, L, AA, AB, AC, AD, AE and AF.

Note 5: A 1SMMF is used in this application in chassis KCS104H, K, J, L, AA, AB, AC, AD, AE and AF.

Note 6: A 10000MMF is used in this application in chassis KCS104C and D.

Note 7: A 2200MMF is used in this application in chassis KCS104H, K, J, L, AA, AB, AC, AD, AE and AF.

CONTROLS

ITEM No.	RATING RESIST	RATING WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω	1	102533				UE-1089	Contrast
R1B	1Meg	1	Not Req.				Not Req.	Volume Tap@ 250K
C	Switch	1	Not Req.				Not Req.	Attach to R1B
R2A	3. 5Meg	1	102522	AB-83	A47-3.5Meg-S	QU1-339	U250	Tone
B	Shaft	1	Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R2A
R3A	1. 5Meg	1	102530	AB-742	A47-1.5Meg-S	QU1-153	U155	Vertical Hold
B	Shaft	1	Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R3A
R4A	200K	1	102531	AB-46	A47-200K-S	QU1-249	U43	Brightness
B	Shaft	1	Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R4A
R5A	5Meg	1	100290	AB-87	A47-5Meg-S	QU1-461	EU-47	Height
B	Shaft	1	Not Req.	AK-19	RN-3	TQ	Not Req.	Attach to R5A
R6A	1. 5Meg	1	102408	BX-742	A47-1.5Meg-S	BU-158	TA155L	Vertical Linearity
B	Shaft	1	Not Req.	AK-19	FKS-1	TMQ-KIT	Not Req.	Attach to R6A
R7A	2Meg	1	100563	BX-75	A47-2Meg-S	QU1-139	TA26L	Sync Stabilizer
B	Shaft	1	Not Req.	AK-19	FKS-1/4	RQ	Not Req.	Attach to R7A
R8A	500K	1	100692	AB-61		QU1-133	TAP55R	AGC Control
B	Shaft	1	Not Req.	AK-1		SU	Not Req.	Attach to R8A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	IRC PART No.	NOTES
R9	5800Ω			BTS-5800	Note 1
R10	2700Ω			BTS-2700	Note 2
R11	68000Ω	1	102268	BTA-6800	2
R31	1800		102512	BTS-180	
R32	100K		102410	BTS-100K	
R34	6800Ω		102258	BTS-6800	
R35	820Ω		102182	BTS-820	
R36	1Meg		102510	BTS-1Meg	
R37	1Meg		102510	BTS-1Meg	
R38	1000Ω		102220	BTS-1000	
R39	10000Ω		102210	BTS-1000	
R40	100K		102410	BTS-100K	
R41	100K		102410	BTS-100K	
R42	680Ω		102261	BTS-680	
R43	33000		102523	BTS-3300	
R44	27K 5%		102527	BTS-27K 5%	
R25	15K	2	102315	BTS-15K	
R26	100K		102410	BTS-100K	
R27	12K	3	102312	BTS-12K	
R28	1200		102112	BTS-120	
R29	33000		102233	BTS-3300	
R30	15K	2	102315	BTS-15K	
R31	470K		102247	BTS-470K	
R32	12000Ω		102312	BTS-1200	
R33	3300		102233	BTS-330	
R34	47K 5%		102347	BTS-47K	Note 7
R35	47K 5%		102347	BTS-47K	
R36	5.6Ω 5%		102056	BTS-56 5%	
R37	680Ω		102188	BTS-680	
R38	15K		102315	BTS-15K	
R39	100K		102410	BTS-100K	
R40	150K 5%		102415	BTS-150K 5%	
R41	150K 5%		102415	BTS-150K 5%	
R42	680Ω		102188	BTS-680	
R43	47K 5%		102147	BTS-47K	
R44	1800 5%		102118	BTS-180 5%	
R45	4300Ω	7	102145	1/4A-4300	
R46	27K		102327	BTS-27K	
R47	33K		102333	BTS-33K	
R48	33000 5%		102533	BTS-3300 5%	
R49	18000 5%		102218	BTS-1800 5%	
R50	220K		102422	BTS-220K	
R51	330Ω		102133	BTS-330	
R52	180Ω		102118	BTS-180	
R53	2200		102222	BTS-2200	
R54	10K	2	102310	BTS-10K	
R55	3000Ω 5%	1	102230	BTA-3000 5%	
R56	470K		102447	BTS-470K	
R57	18000	2	102318	BTS-1800	
R58	470K		102447	BTS-470K	
R59	18000	2	102318	BTS-1800	
R60	5600	1	102156	BTA-560	
R61	82K		102282	BTS-82K	
R62	33K		102333	BTS-33K	
R63	47K		102347	BTS-47K	
R64	220K		102422	BTS-220K	
R65	39K		102339	BTS-39K	
R66	270K		102427	BTS-270K	
R67	47K	2	102347	BTS-47K	
R68	150K 5%		102413	BTS-150K 5%	
R69	33K		102333	BTS-33K	
R70	120K 5%		102412	BTS-120K 5%	
R71	56K 5%		102356	BTS-56K 5%	
R72	1. 5Meg 5%		102516	BTS-1.5Meg 5%	
R73	2700	1	51127	BTA-270	
R74	15K		102315	BTS-15K	
R75	47K		102347	BTS-47K	
R76	1000Ω		102210	BTS-1000	
R77	82Ω		102082	BTS-82	
R78	33K		102339	BTS-33K	
R79	33K 5%		102333	BTS-33K 5%	
R80	33K		102233	BTS-33K	
R81	10Meg		102810	BTS-10Meg	
R82	470K		102447	BTS-470K	
R83	330K		102433	BTS-330K	
R84	5600	1	102156	BTA-560	
R85	33000	7	102417	PW7-3300	
R86	56K		102356	BTS-56K	
R87	270K		102427	BTS-270K	
R88	1. 2Meg		102512	BTS-1. 2Meg	
R89	1Meg		102510	BTS-1Meg	
R90	1Meg		102510	BTS-1Meg	
R91	33K		102333	BTS-33K	
R92	560K		102456	BTS-560K	
R93	27000 5%		102227	BTS-2700 5%	
R94	6800Ω	1	102182	BTA-820	
R95	68000	1	102268	BTA-6800	
R96	22K		102322	BTS-22K	
R97	15K		102315	BTS-15K	
R98	5. 6Meg		102568	BTS-5. 6Meg	
R99	33KΩ		102433	BTS-330K	
R100	1Meg		102510	BTS-1Meg	
R101	470K		102447	BTS-470K	
R102	33K		102433	BTS-330K	
R103	18K 5%		102318	BTS-18K 5%	
R104	15K		102315	BTS-15K	
R105	2200Ω		102322	BTS-2200	
R106	130K		102433	BTS-330K	
R107	470K		102447	BTS-470K	
R108	1Meg		102510	BTS-1Meg	
R109	1Meg		102510	BTS-1Meg	
R110	33K 5%	1	102333	BTA-33K 5%	
R111	150Ω	1	102115	BTA-150	
R112	180K		102415	BTS-180K	
R113	220K		102422	BTS-220K	
R114	3300Ω		102223	BTS-3300	
R115	15K		102315	BTS-15K	
R116	56Ω				
R117	220K		102422		
R118	100K			BTS-100K	Note 3
R119	680K		102482	BTS-680K	
R120	330K		102433		
R121	39K	1	102539		
R122	3900Ω		102239	BTS-3900	
R123	82K 5%		102303	BTS-82K 5%	
R124	8. 5Meg		102568		
R125	150K 5%	1	102410	BTA-150K 5%	Note 4
R126	47K		102347	BTS-47K	
R127	820K		102482	BTS-820K	
R128	1Meg		102510	BTS-1Meg	
R129	560K		102456	BTS-560K	
R130	47Ω		102047	BTS-47	
R131	10K	2		BTS-10K	Note 5
R132	100Ω	2	102110	BTS-100	
R133	56K		102356	BTS-56K	
R134	270K		102427	BTS-270K	
R135	1. 6Ω 5%			BTW-1. 6 5%	Note 6
R136	1000Ω		102220	BTS-1000	
R137	3300Ω		102223	BTS-3300	
R138	47000 5%		102247	BTS-4700 5%	
R139	100K		102410	BTS-100K	
R140	1. 2Ω		102512	BW1-1. 2	

Note 1: A 4700Ω resistor is used in some versions; replace with value found in unit.

Note 2: A 2300Ω resistor is used in some versions; replace with value found in unit.

Note 3: Chassis KCS104A, B, C and D use a 150K (Part #502415) in this application.

Note 4: Chassis KCS104A, B, C & D use a 100K 1% (Part #512410) in this application.

Note 5: Chassis KCS104A, B, C and D use a 6800Ω 2 W (part #522268) in this application.

Note 6: Chassis KCS104A, B, C and D use a .68Ω 5% (Part #109845) in this application.

Note 7: Some versions may use a 33K resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC	565VCT	5V	6.3V	101933					
	① 1. 78A	② .270A	③ 3A	④ 9. 1A						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	Horiz. Output Trans.	100860	FB44*	HVO-55*	X128*	A-8244*	FLY-60*	D-30C*④	
T3	Vert. Output Trans.	100961	21900 ③	SA-2823 ③	V301 ③	A-8151	26872 ③	A-10830 ③	
T4A	Yoke(W)Horiz@15.5MHz	101647 ③	DF601 ③	MDF-812 ③	Y30F(S/A) ③	DY-23A ③	Y-16 ③	Y-61 ③	
B	Vert@4.5MHz				⑤		⑤	⑤	
T5A	Width-Series Coil (.4-1.4MH)	100553		MCW-10	WC-12 ③		WC-24 ③		
B	Width-Parallel Coil (2. 4-10MH)								

① Drill new mounting hole(s).
② Connect as auto trans.
③ Connect B+ to point of original trans. red lead (yoke socket pin #4).
④ Use T to L horiz. ratio.
⑤ Use original horiz. yoke damping network, with capacitor C118 across horiz. yoke terms #3 and #7, if necessary.
⑥ Connect horiz. yoke term #3 to yoke plug pin #4; horiz. yoke term #2 and #7 to yoke plug pin #5; horiz. yoke term #1 to yoke plug pin #6.
⑦ Use original rear cover and mounting clip.
This part may be superseded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	5	5	5	5	5	5	9
4	4	4	4	4	4	4	7
3	3	3	3	3	3	3	5
2	2	2	2	2	2	2	3
1	1	1	1	1	1	7	1
Special Notes	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 2	1 & 3

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T6	6. 6K	1.65Ω	100657 ①	Z1006	A-2902	A-3852	28S46	S-92	① Used in chassis KCS104C, D, E, F.
	7. 6K	3-4Ω	100037 ②	Z1008	A-3030	A-3878 ③	28S48	S-92	② Used in chassis KCS104A, B, AA, AB, AC, AD, AE, AF, H, J, K, L.
									③ Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP	RCA Victor PART No.	QUAM PART No.	RCA TYPE No.	NOTES
SP1	6"	PM	3-4Ω	74864 ① ②	8A3I ①	30B82 ②	① Used in models 21D7425, U; 21D7427, U; 21D7475, U; 21D7505, U; 21D7506, U; 21D7507, U; 21D7567, U; 24D7705, U; 24D7706, U; 24D7707, U; 24D7738, U; 24D7739, U.
SP2	6" X 9"	PM	3-4Ω	74864 ② ③	8A3I ②	30B83 ③	② Used in models 21T7415, U; 21T7416, U; 21T7417, U; 21T7427, U; 24D7705, U; 24D7706, U; 24D7707, U; 24D7738, U; 24D7739, U.
	3½"	PM	3-4Ω	103119 ③			③ Parallel & phase winding.

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L1	UHF Ant. Coil	79566	
L2	F'il. Coil	79565	
L3	F'il. Choke	79565	
L4	Cathode Choke	79565	
L5	UHF Osc. Coil	79566	
L6	UHF Osc. Plate Coil	79557	
L7	UHF IF Output	79567	
L8	VHF Ant. Coils	79590	Stator complete with rotor. Includes Channel 13
L9	VHF Ant. Coil	78401	
L10	RF Choke	102345	
L11	VHF Osc. Coil	79543	
L12	F'il. Choke	77206	
L13	Neut. Coil	78582	

ITEM No.	USE	RCA Victor PART No.	NOTES
L14	RF Choke	79456	
L15	VHF RF Coils	78574	Stator complete with rotor. Includes Channels 2, 3 and 4.
L16	VHF Mixer Grid Coils	78272	Stator complete with rotor. Includes Channels 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13.
L17	F'il. Choke	78763	
L18	VHF Osc. Coils	79098	Stator complete with rotor. Includes Channels 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13.
L19	VHF Osc. Coils	77859	
L20	Conv. Plate	102446	Includes trap
L21	Trap Coil	78582	

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 Cycles	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L43	.270A	37.5Ω	1. 2HY	77676	C6037 ①	C-2974	C-3258	28C44	S-C2	① Drill one new mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L41	90Ω		79966			62U				Tap @ 63Ω-Horiz. Osc. Horiz. Waveform
L42	47Ω		100300							

TRANSFORMER (HORIZ. OUTPUT)

ITEM No.	USE	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L22	RF Choke	0Ω			162651				
L23	47. 35MC Trap	.1Ω			103890				
L24	1st Video IF	.2Ω			102649				
L25	F'il. Choke	0Ω							Part of Printed Board
L26	2nd Video IF	.1Ω	.1Ω	101588					
L27	F'il. Choke	0Ω							Part of Printed Board
L28	3rd Video IF	.1Ω	.1Ω	101588					
L29	4th Video IF	.1Ω	.1Ω	101588					
L30	Series Peaking Coil	3.1Ω		102639	19-1006		6152		18 Microhenries
L31	Series Peaking Coil	3.1Ω		102639	19-1006		6152		18 Microhenries
L32	Series Peaking Coil	5.8Ω		101387	19-2350		TV-185		180 Microhenries
L33	Series Peaking Coil	6.1Ω		102696	19-3180*		TV-184*	6180*	180 Microhenries; Wound on 57K resistor
L34	Shunt Peaking Coil	12.5Ω		101389	19-3300*			6185*	300 Microhenries; Wound on 6800Ω resistor
L35	4. 5MC Trap	10Ω		103316					
L36	Shunt Peaking Coil	8.3Ω		102698	19-3125*			6183*	130 Microhenries; Wound on 6800Ω resistor
L37	Series Peaking Coil	8.3Ω		102698	19-3125*			6183*	130 Microhenries; Wound on 6800Ω resistor
L38	Sound IF	2.3Ω		102693					Tertiary winding = .3Ω
L39	Ratio Det.	9.3Ω	.5OCT	102692					1. 5 Microhenries; IRC part #CL-1
L40	RF Choke	1.2Ω		79940	19-1001		4804		

* Parallel with 27K resistor.
◆ Parallel with 6800 resistor.
◆ Parallel with 6800Ω resistor.

RCA VICTOR MODELS 21-D-7425, U; 21-D-7427, U; 21-D-7445, U; 21-D-7447, U; 21-D-7467, U; 21-D-7475, U; 21-D-7485, U; 21-D-7487, U; 21-D-7505, U; 21-D-7506, U; 21-D-7507, U; 21-T-7385, U; 21-T-7386, U; 21-T-7387, U; 21-T-7415, U; 21-T-7416, U; 21-T-7417, U; 24-D-7345, U; 24-D-7347, U; 24-D-7366, U; 24-D-7368, U; 24-D-7370, U; 24-D-7371, U; 24-D-7705, U; 24-D-7706, U; 24-D-7708, U; 24-D-7736, U; 24-D-7738, U (Ch. KCS104A, AA, AB, AC, AD, AE, AF, B, C, D, E, F, H, J, K, L)

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	C 3/10	3/10A 250V	102164	102162	332.300 (C-3/10A)	346001	C 3/10	HC 0 to 3/10

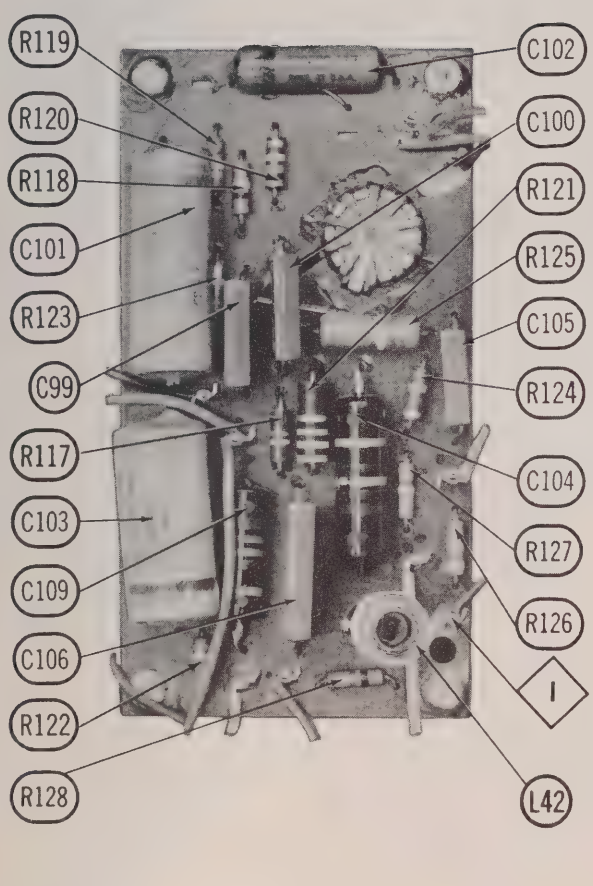
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		RCA Victor PART No.	SYLVANIA PART No.	
M2	*1N82	77489	1N82A	UHF Mixer (Clip In)
M3	1N60	79985	1N60	Video Detector (Pigtail)

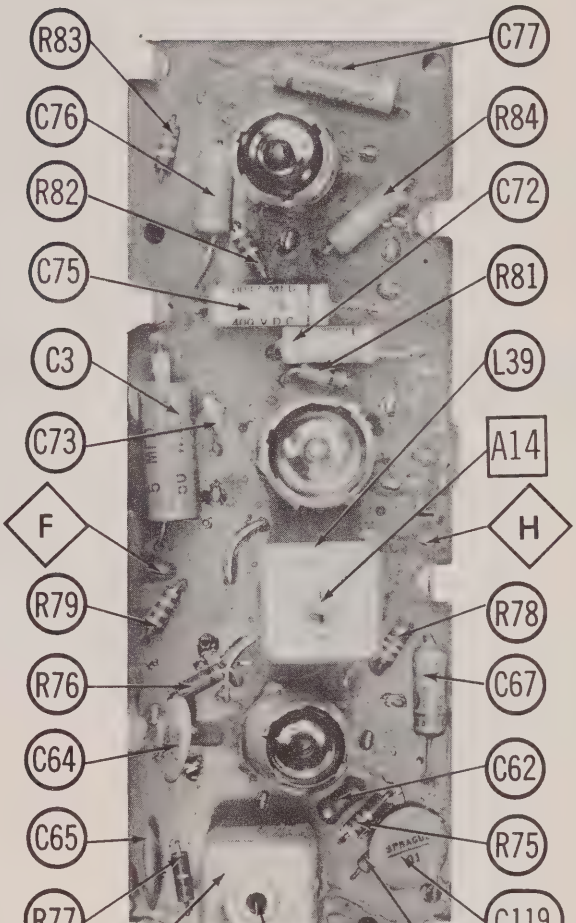
* K3D may be used in some versions.

MISCELLANEOUS

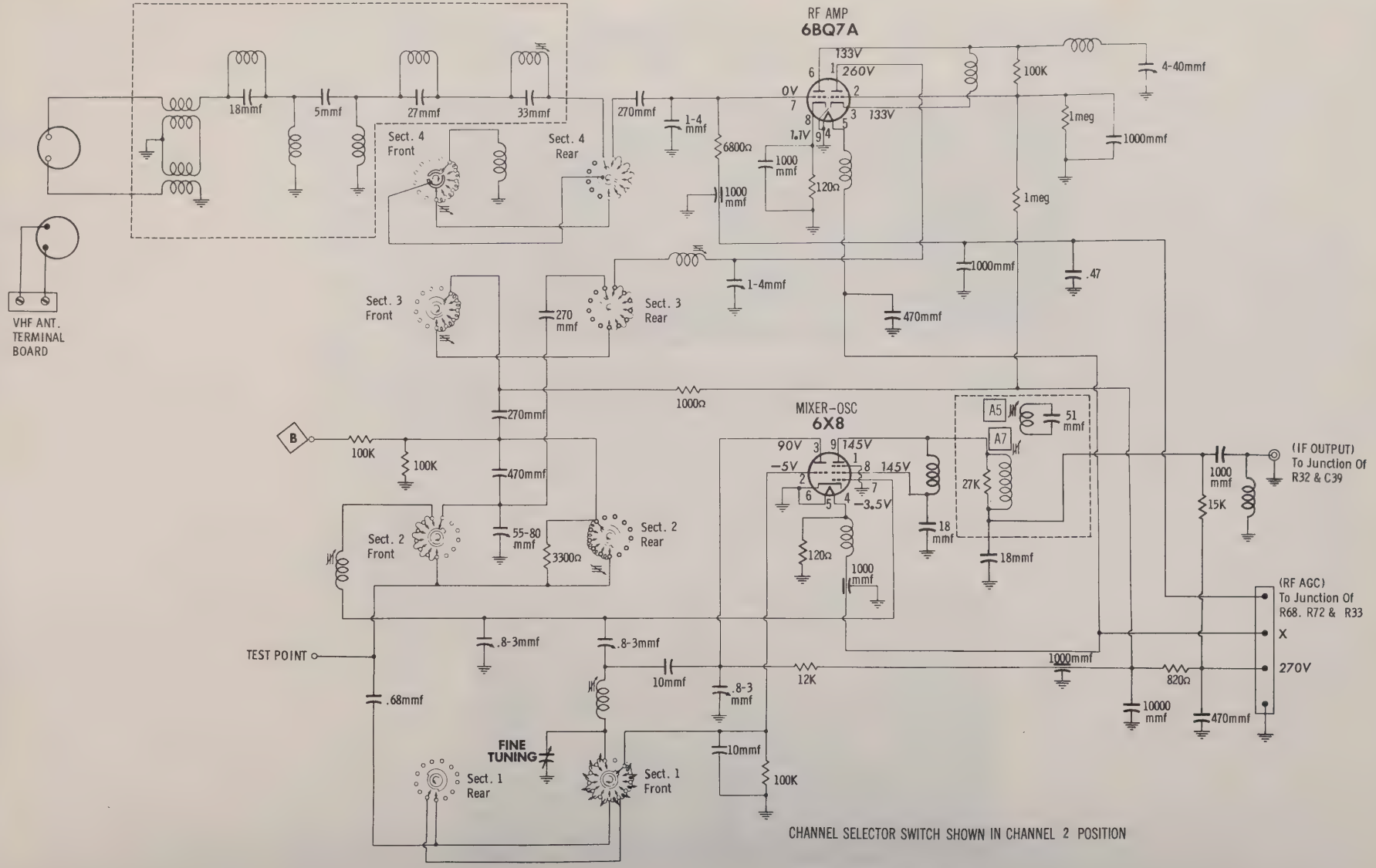
ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Lamp	11891	Pilot #44
M5	Tuner	KRK36C/E	UHF, Used in chassis KCS104AB, AD, AF, B, D, J, F, L.
M6	Tuner	KRK29T	VHF, Used in chassis KCS104B, D, F, J, L.
	Tuner	KRK29T/U	VHF, Used in chassis KCS104AB, AD, AF.
	Tuner	KRK22M	VHF, Used in chassis KCS104A, AA, AC, AE, C, E, H, K.
M7	Ant. Matching Trans.	102448	Includes Coils and Caps.
M8	Switch	102884	UHF/VHF Ant. Selector (Slide Type)
M9	Switch	102686	TV-Phono, DPDT (Slide Type)
M10	Focus Magnet	102482	Magnet and Cap. Ass'y.
M11	Ion Trap	76141	
M12	Trimmer Cap.	78397	Mica (80-135MMF)
M13	Trimmer Cap.	100849	IF Link (10-160MMF)
M14	Trimmer Cap.	79376	Horiz. Drive (10-160MMF)
M15	Trimmer Cap.	77616	Mica (4-40MMF)
	Knob	102722	Channel Selector, VHF, Models 21D7425, U; 21D7445, U; 21D7485, U; 21D7505, U; 24D7545, U.
	Knob	102723	Channel Selector, VHF, Models 21D7427, U; 21D7446, U; 21D7447, U; 21D7487, U; 21D7507, U; 24D7547, U; 24D7566, U; 24D7587, U.
	Knob	102502	Channel Selector, VHF, Models 21T7385 and 21T7415.
	Knob	102748	Channel Selector, VHF, Models 21D7497, U; 21D7488, U; 24D7568, U.
	Knob	102503	Channel Selector, VHF, Models 21T7386, 21T7387, 21T7416, 21T7417.
	Knob	101151-B	Channel Selector, VHF, Models 24D7705, U.
	Knob	101152-B	Channel Selector, VHF, Models 24D7706, U; 24D7726, U.
	Knob	101153-B	Channel Selector, VHF, Models 24D7708, U; 24D7728, U.
	Knob	102653	UHF Tuning, Models 21T7385U, 21T7415U, 21D7425U, 21D7445U, 21D7485U, 21D7505U, 24D7545U.
	Knob	102578	UHF Tuning, Models 24D7547U, 24D7566U, 24D7587U, 21D7427U, 21D7446U, 21D7447U, 21D7487U, 21D7506U, 21D7507U, 21T7386U, 21T7387U, 21T7416U, 21T7417U.
	Knob	102749	UHF Tuning, Models 21D7479U, 21D7488U, 21D7468U.
	Knob	101144-B	UHF Tuning, Models 24D7705U, 24D7706U, 24D7708U, 24D7726U, 24D7728U.
	Knob	102500	Channel Selector, UHF/VHF, Models 21T7385U, 21T7415U.
	Knob	102501	Channel Selector, UHF/VHF, Models 21T7386U, 21T7387U, 21T7416U, 21T7417U.
	Knob	101124-B	Contrast, All Models.
	Knob	101276-B	Fine Tuning, All Models except 24D7705, U, 24D7706, U, 24D7708, U, 24D7726, U, 24D7728, U.
	Knob	101154-B	Fine Tuning, Models 24D7705, U, 24D7707, U, 24D7708, U, 24D7726, U, 24D7728, U, 24D7706, U.
	Knob	101138-B	On-Off Volume, Models 21D7425, U, 21D7445, U, 21D7485, U, 21D7505, U, 24D7545, U, 21T7385, U, 21T7415, U.
	Knob	100621-B	On-Off Volume, Models 21D7427, U, 21D7446, U, 21D7447, U, 21D7487, U, 21D7506, U, 21D7507, U, 21T7386, U, 21T7387, U, 21T7416, U, 21T7417, U, 24D7547, U, 24D7566, U, 24D7587, U.
	Knob	101140-B	On-Off Volume, Models 21D7479, U, 21D7488, U, 24D7568, U.
	Knob	101139-B	On-Off Volume, Models 24D7705, U.
	Knob	101137-B	On-Off Volume, Models 24D7706, U, 24D7726, U.
	Knob	101183-B	On-Off Volume, Models 24D7708, U, 24D7728, U.
	Safety Glass	102481	Used in 21-T Models.
	Safety Glass	102742	Used in 21-D Models.
	Safety Glass	102988	All 24 inch Models.



HORIZ. OSC. PRINTED BOARD



SOUND PRINTED BOARD



CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 2 POSITION

Tuner KRK 22-M Used With VHF Models

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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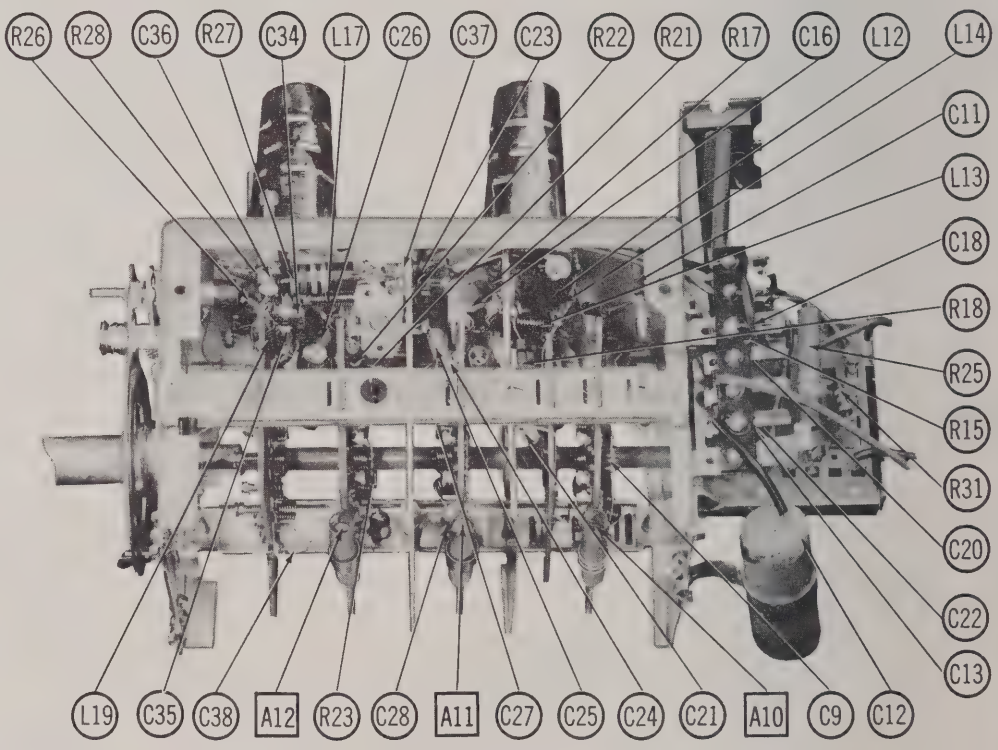
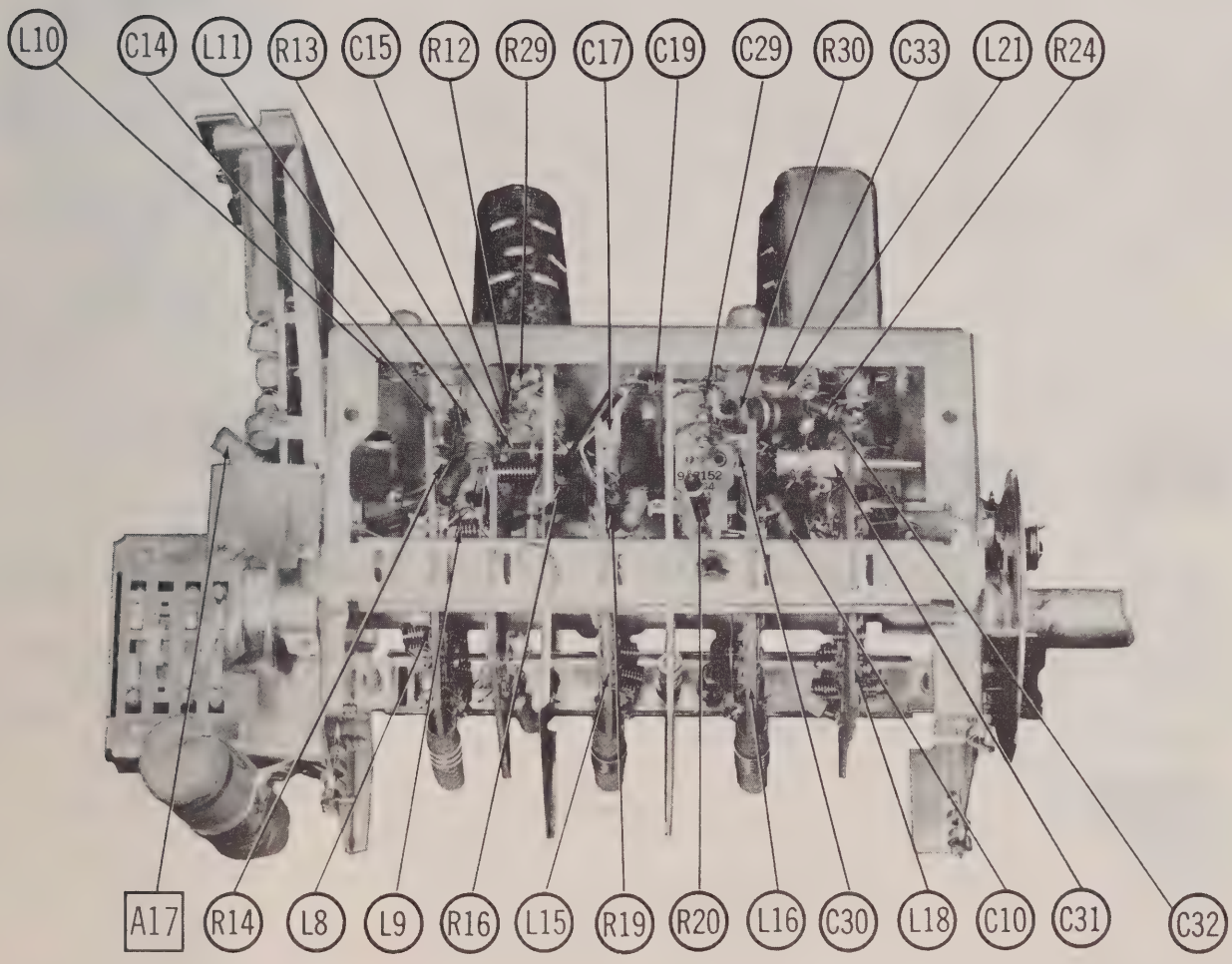
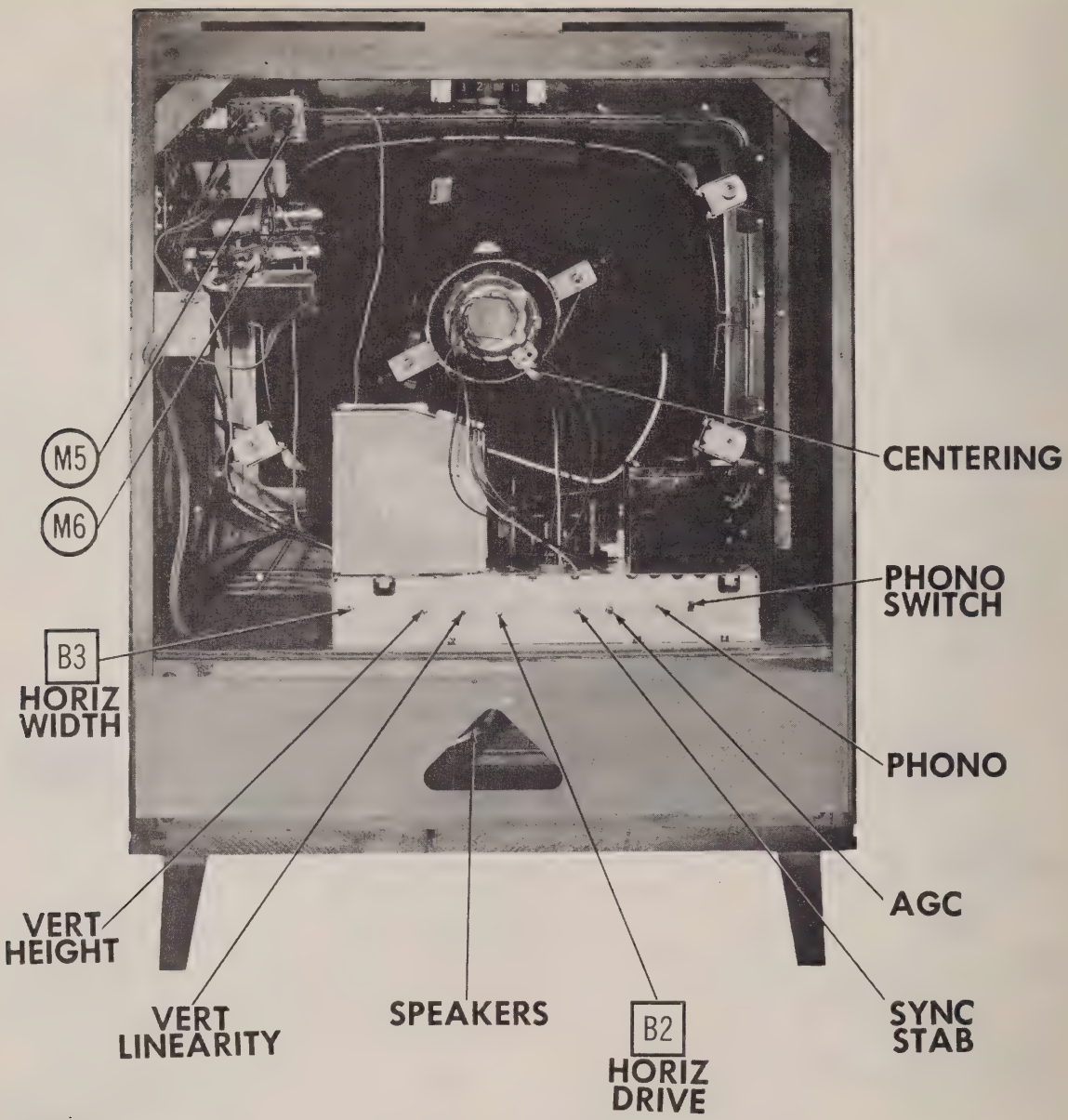
ALTERNATE VHF TUNER



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a clip lead across the horizontal waveform coil (L42) and adjust the horizontal hold until the picture synchronized horizontally. Remove the clip lead from across L42. Connect the low capacity probe of the oscilloscope to point J. Connect the low side to chassis. Turn the horizontal hold clockwise until the picture falls out of sync, then counter clockwise until the picture just falls into sync. Adjust the horizontal waveform slug (B1) until the waveform on the scope appears similar to Fig. 5 with equal peaks. If necessary during alignment of B1, keep the picture in sync with the horizontal hold. Remove the scope connection.

Set the width slug (B3) fully counter clockwise. Adjust the horizontal drive trimmer (B2) counter clockwise until a bright vertical line appears in the picture, then turn clockwise until the line just disappears. Adjust the width slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

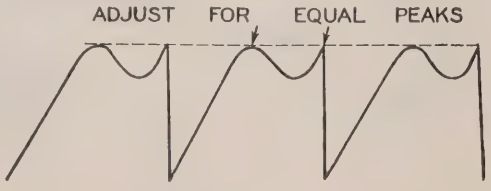


FIG. 5

REGENCY
MODEL TR-6

REGENCY
MODEL TR-6

TRADE NAME	Regency Model TR-6
MANUFACTURER	Regency Div., I. D. E. A. Inc., 7900 Pendleton Pike, Indianapolis, 26, Ind.
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	9 Volts DC RATING 6.4 MA @ 9 Volts DC
TUNING RANGE—BROADCAST	535KC-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	262KC (400∿Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	535KC	Tuning gang fully closed	"	A4	"
3.		"	1630KC	Tuning gang fully open	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2 and 3.
4.		"	1500KC	Tune to 1500KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

With tuning gang fully open, freq. range should extend to 1630KC. If not, repeat steps 3 and 4.

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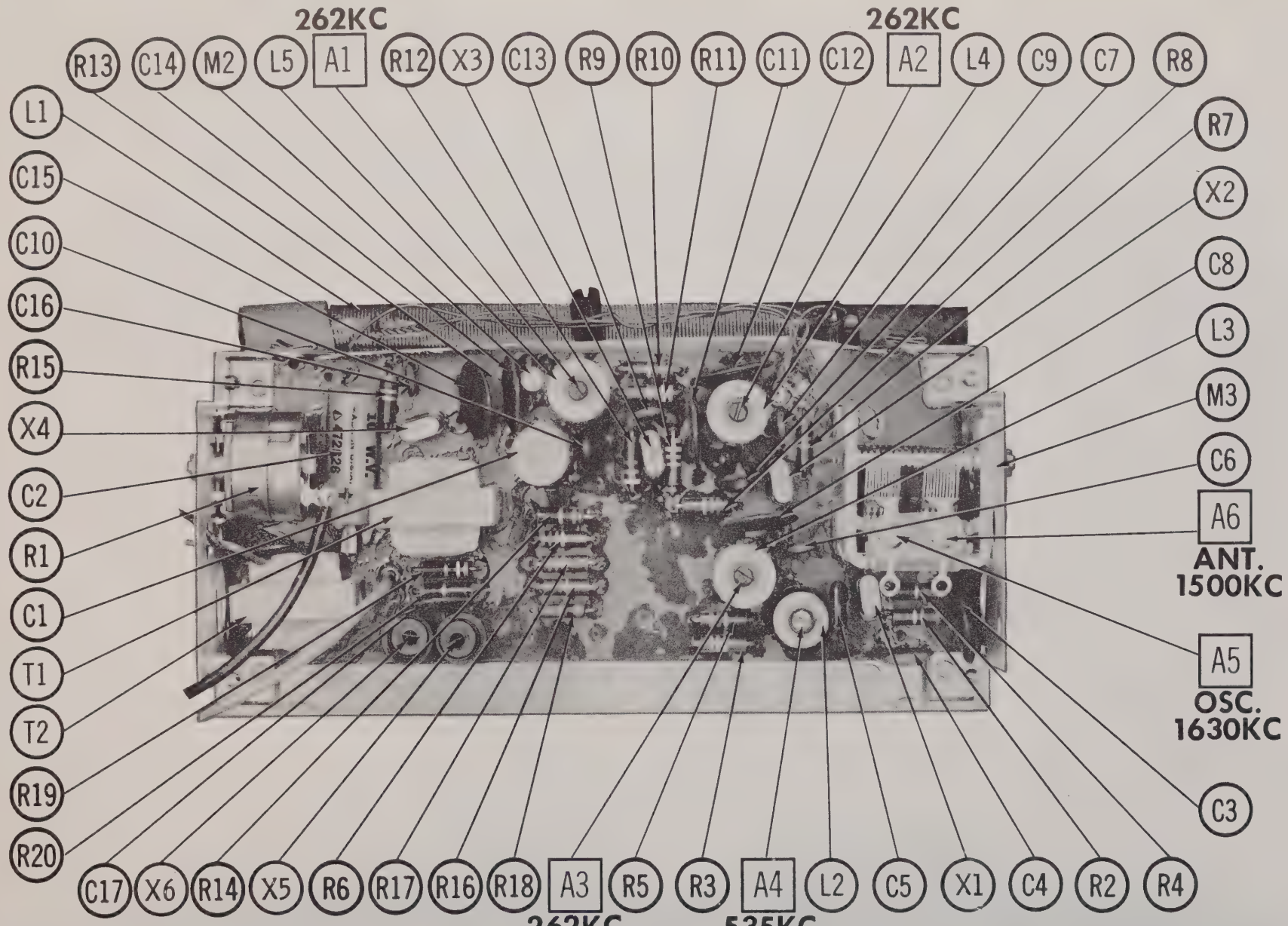


CHASSIS TOP VIEW

REGENCY
MODEL TR-6

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	USE	REGENCY PART No.	NOTES
X1	Converter	100-875-4	Type 2N172
X2	1st. IF Amplifier	100-875-5	
X3	2nd. IF Amplifier	100-875-5	
X4	AF Amplifier	100-875-6	Type 310 or 616
X5	Output	100-875-7	Note 1
X6	Output	100-875-7	Note 1

Note 1. Type 353, 621GE, 2N186 or 2N187 may be used. Type 353 must be replaced as matched units. When replacing X5 or X6 use original type.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	REGENCY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	15	10	300-590						
B	50	10							
C	50	10							
C2	2	10	300-109-7	SRE50V2	BBR2-50	TAW12A2	ML-2-15		TVA-1201

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	REGENCY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	20000		100-772-6	BPD-02	DD-203	K085	ED-02		5HK-S2	
C4	10000		20-075-22	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C5	268	500	100-771-1							
C6	1000		20-075-21	BPD-001	DD-102	K069	ED-001	DC521	5HK-D1	
C7	10		100-772-5	NP0-D110	TCZ-10	Z018	TCO-10	ZT-541	5TCC-Q1	
C8	50000		100-772-7	BPD-05						
C9	1000		20-075-21	BPD-001	DD-102	K069	ED-001	DC521	5HK-D1	
C10	10		100-772-5	NP0-D110	TCZ-10	Z018	TCO-10	ZT-541	5TCC-Q1	
C11	50000		100-772-7	BPD-05						
C12	50000		100-772-7	BPD-05						
C13	1000		20-075-21	BPD-001	DD-102	K069	ED-001	DC521	5HK-D1	
C14	50000		100-772-7	BPD-05						
C15	50000		100-772-7	BPD-05						Note 1
C16	1000		20-075-21	BPD-001	DD-102	K069	ED-001	DC521	5HK-D1	
C17	50000		100-772-7	BPD-05						

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	REGENCY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2000Ω	½	300-587					Volume
B	Switch							Attach to R1A

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	REGENCY PART No.	IRC PART No.	
R2	12K			BTS-12K	
R3	56K			BTS-56K	
R4	2200Ω			BTS-2200	
R5	560Ω			BTS-560	Note 1
R6	68K			BTS-68K	
R7	220Ω			BTS-220	
R8	560Ω			BTS-560	Note 1
R9	39K			BTS-39K	
R10	2700Ω			BTS-2700	
R11	390Ω			BTS-390	
R12	470Ω			BTS-470	
R13	100Ω			BTS-100	Note 2
R14	2700Ω			BTS-2700	
R15	12K			BTS-12K	
R16	2200Ω			BTS-2200	
R17	560Ω			BTS-560	
R18	100Ω			BTS-100	
R19	39Ω			BTS-39	Note 3
R20	10Ω			BTS-10	

Note 1. Some versions may use 470Ω in this application.
Note 2. Not used in some versions.
Note 3. Some versions may use 27Ω or 33Ω in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (INPUT)

ITEM No.	Resistance		REPLACEMENT DATA						NOTES
	PRI.	SEC.	REGENCY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1250Ω	140Ω CT	300-586-1				TR-24		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	REGENCY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	725Ω	3-4Ω	300-586-2				TR-29		

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	REGENCY PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	500-340	4A07	223S1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		REGENCY PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	300-595				
L2	Osc. Coil	300-553				
L3	1st. IF Trans.	300-551-1				
L4	2nd. IF Trans.	300-555-2				
L5	3rd. IF Trans.	300-555-3				

BATTERIES

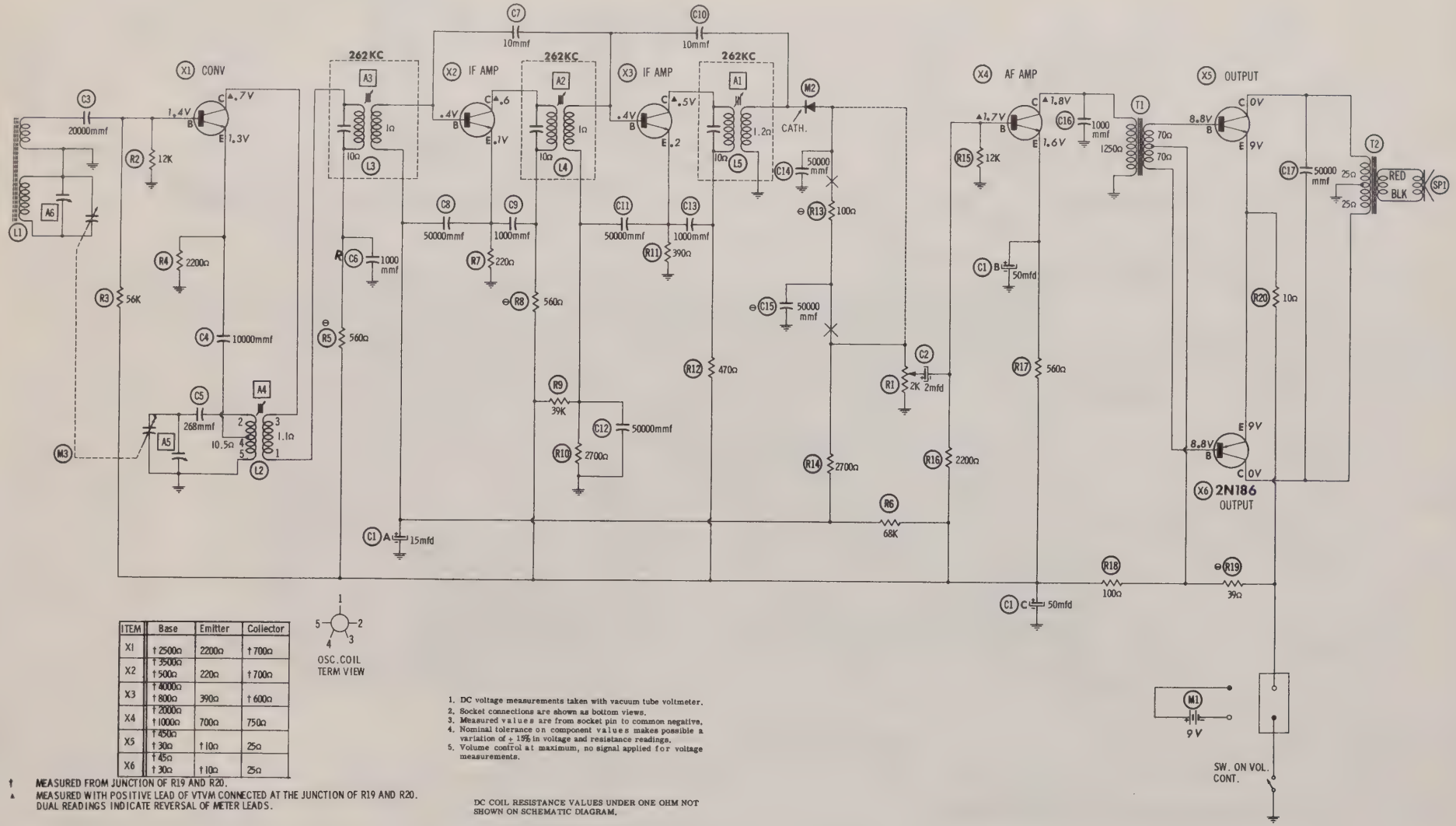
ITEM No.	VOLTAGE	REGENCY PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	9V	615					C6X		

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		REGENCY PART No.	SYLVANIA PART No.	
M2	DR117TS	100-773	1N34A	Audio Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	REGENCY PART No.	NOTES
M3	Tuning Cap.	300-585	2 Gang
	Leather Case	100-887	Includes grill cloth and name plate
	Knob	300-556	Tuning (Specify color)
	Knob	300-581	On-off-volume (specify color)



ITEM	Base	Emitter	Collector
X1	†2500Ω	2200Ω	†700Ω
X2	†3500Ω †500Ω	220Ω	†700Ω
X3	†4000Ω †800Ω	390Ω	†600Ω
X4	†2000Ω †1000Ω	700Ω	750Ω
X5	†450Ω †30Ω	†10Ω	25Ω
X6	†45Ω †30Ω	†10Ω	25Ω

† MEASURED FROM JUNCTION OF R19 AND R20.
▲ MEASURED WITH POSITIVE LEAD OF VTVM CONNECTED AT THE JUNCTION OF R19 AND R20. DUAL READINGS INDICATE REVERSAL OF METER LEADS.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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ROLAND
MODELS 4PL, 4P2-1, -2

ROLAND
MODELS 4PL, 4P2-1, -2

TRADE NAME	Roland Models 4PL, 4P2-1, 4P2-2
MANUFACTURER	Roland Radio Corp., 716 S. Columbus Ave., Mt. Vernon, N.Y.
TYPE SET	Battery Operated Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det.-AVC-AF Amp., 3V4 Output

POWER SUPPLY 1.5 Volts "A" Supply & 67.5 Volts "B" Supply RATING 250MA @ 1.5 Volts DC & 10MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST 535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6	"

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PARTS LIST AND DESCRIPTIONS

ROLAND
MODEL 4PL

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det.-AVC-AF Amplifier	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ROLAND PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	10	100		SRE150V10	BBR10-150	TC42	TD-10-150	FM-1508	TVA-1406

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ROLAND PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200		BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C3	50									
C4	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C5	2000			BPD-002	DD-202	K072	ED-002	DC522	5HK-D2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ROLAND PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1Meg	½	VC-68					Volume

RESISTORS

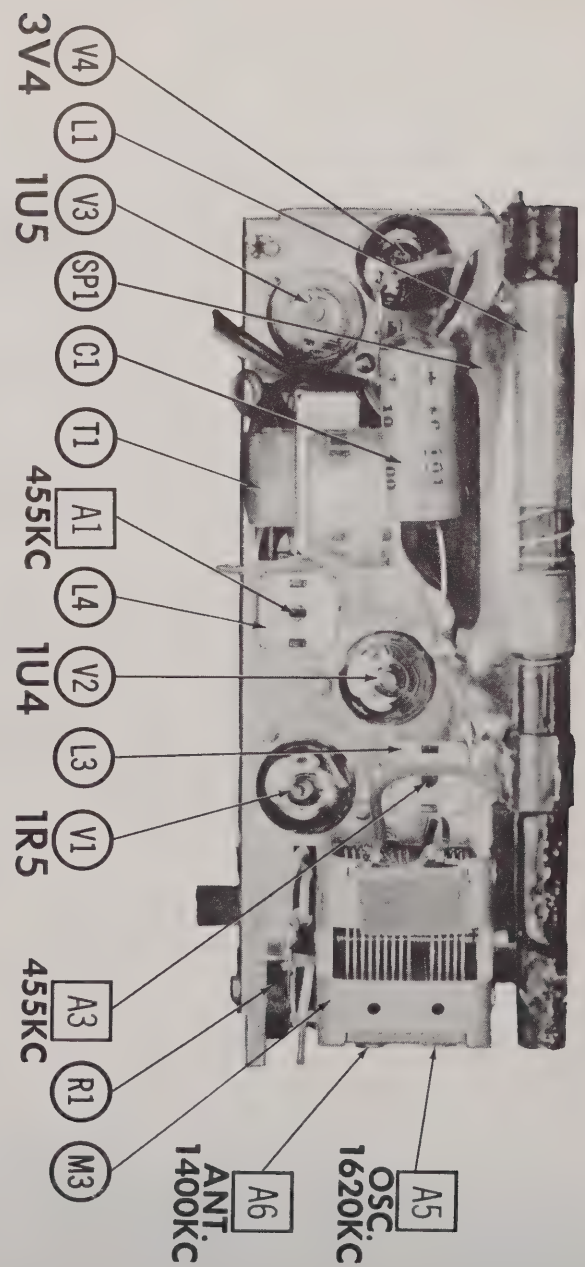
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ROLAND PART No.	IRC PART No.	
R2	100K			BTS-100K	
R3	15K			BTS-15K	
R4	2.2Meg			BTS-2.2Meg	
R5	390Ω			BTR-390	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ROLAND PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	8900Ω	3-4Ω	TR-108						

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ROLAND PART No.	QUAM PART No.	RCA TYPE No.	
SP1	4"	PM	3-4Ω	SP-44	4A07	223S1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ROLAND PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick					
L2	Osc. Coil		14-1074			
L3	Input IF	LF-62	16-6800	BC-358	10-C1	
L4	Output IF	LF-62	16-6801	BC-359	10-C2	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ROLAND PART No.	REPLACEMENT DATA	
K1	Detector-Audio Circuit	4.7Meg, 1Meg, 3.3Meg, 10Meg, 2000MMF, 150MMF, 10000MMF, 150MMF, 5000MMF		Aerovox Centralab Sprague	PA-521 PC-165 DP-1

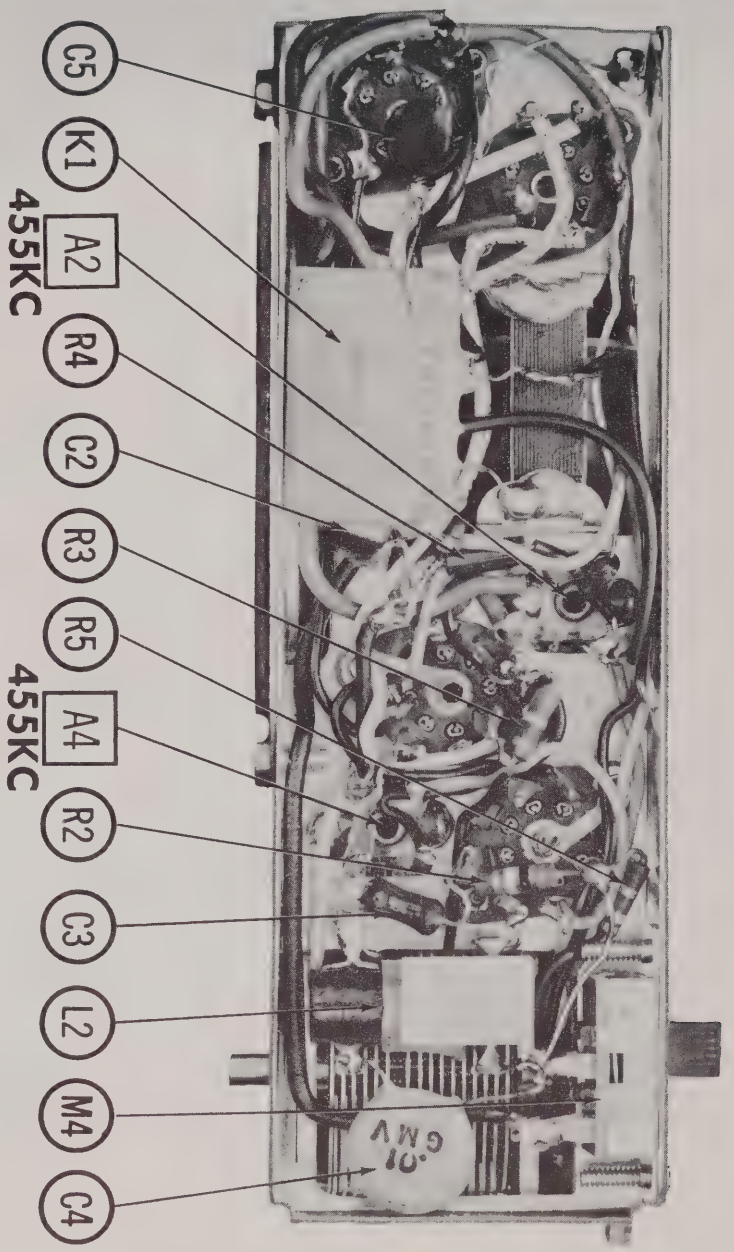
BATTERIES

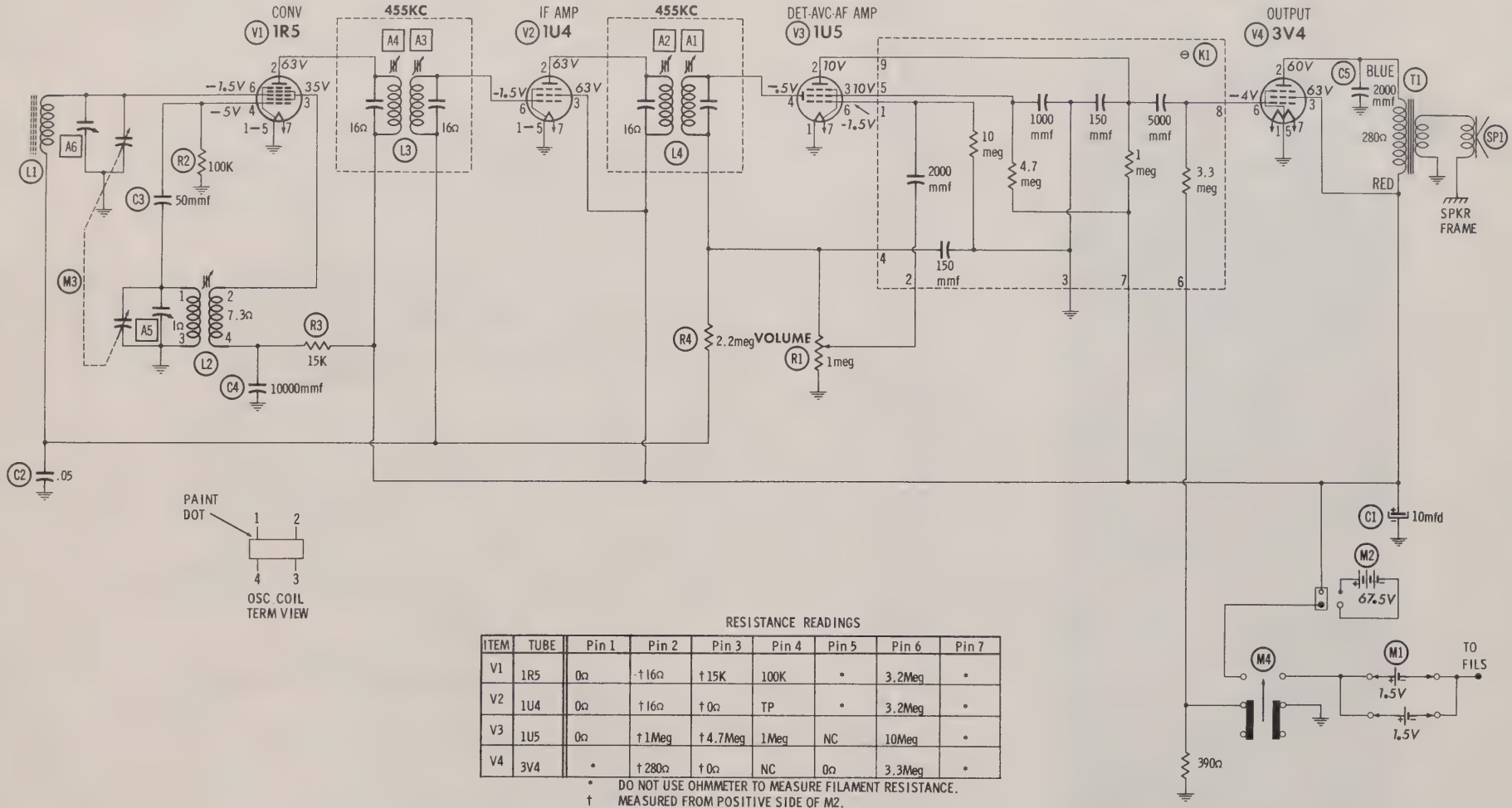
ITEM No.	VOLTAGE	ROLAND PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1 M2	1½V"A" 67½V"B"		635	477		#1	P45		Requires two in parallel

MISCELLANEOUS

ITEM No.	PART NAME	ROLAND PART No.	NOTES
M3	Tuning Cap.	CV73	2 Gang (11-240MMF, 15-115MMF)
M4	Switch		On-off (DPST Slide Type)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	0Ω	†16Ω	†15K	100K	•	3.2Meg	•
V2	1U4	0Ω	†16Ω	†0Ω	TP	•	3.2Meg	•
V3	1U5	0Ω	†1Meg	†4.7Meg	1Meg	NC	10Meg	•
V4	3V4	•	†280Ω	†0Ω	NC	0Ω	3.3Meg	•

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM POSITIVE SIDE OF M2.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter;
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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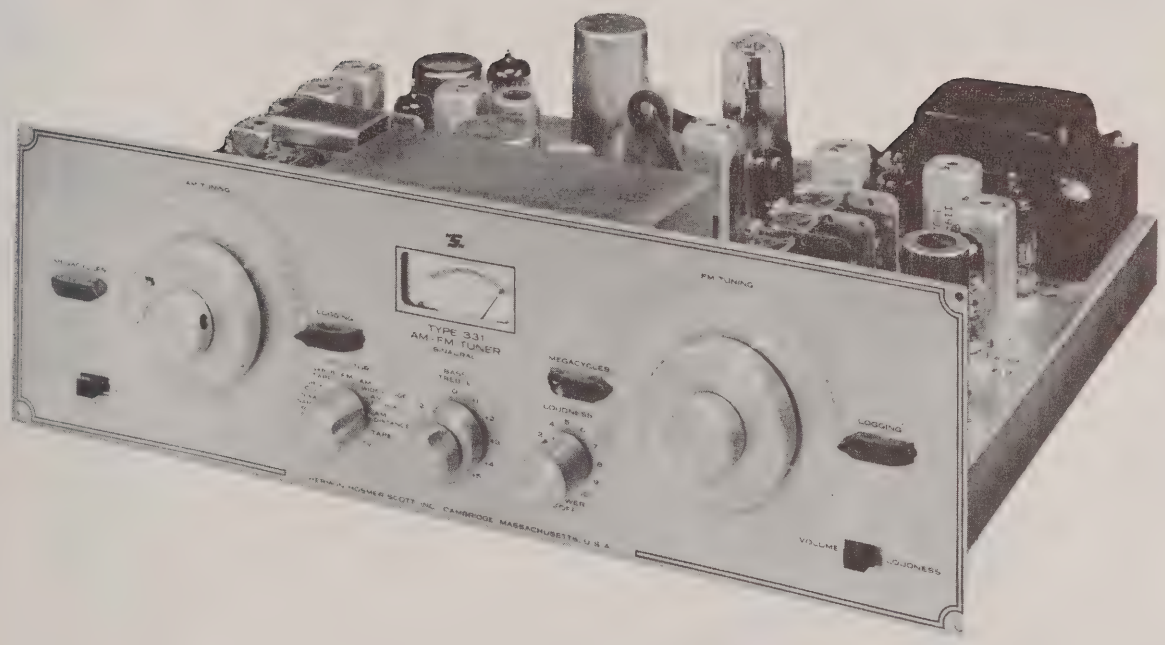
H. H. SCOTT
MODEL 331



H. H. SCOTT
MODEL 331

TRADE NAME	H. H. Scott Model 331	
MANUFACTURER	Hermon Hosmer Scott, Inc., 385 Putnam Ave., Cambridge 39, Mass.	
TYPE SET	AC Operated FM-AM Tuner	
TUBES	Thirteen	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .57 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540KC-1620KC	FREQ. MOD. 88MC-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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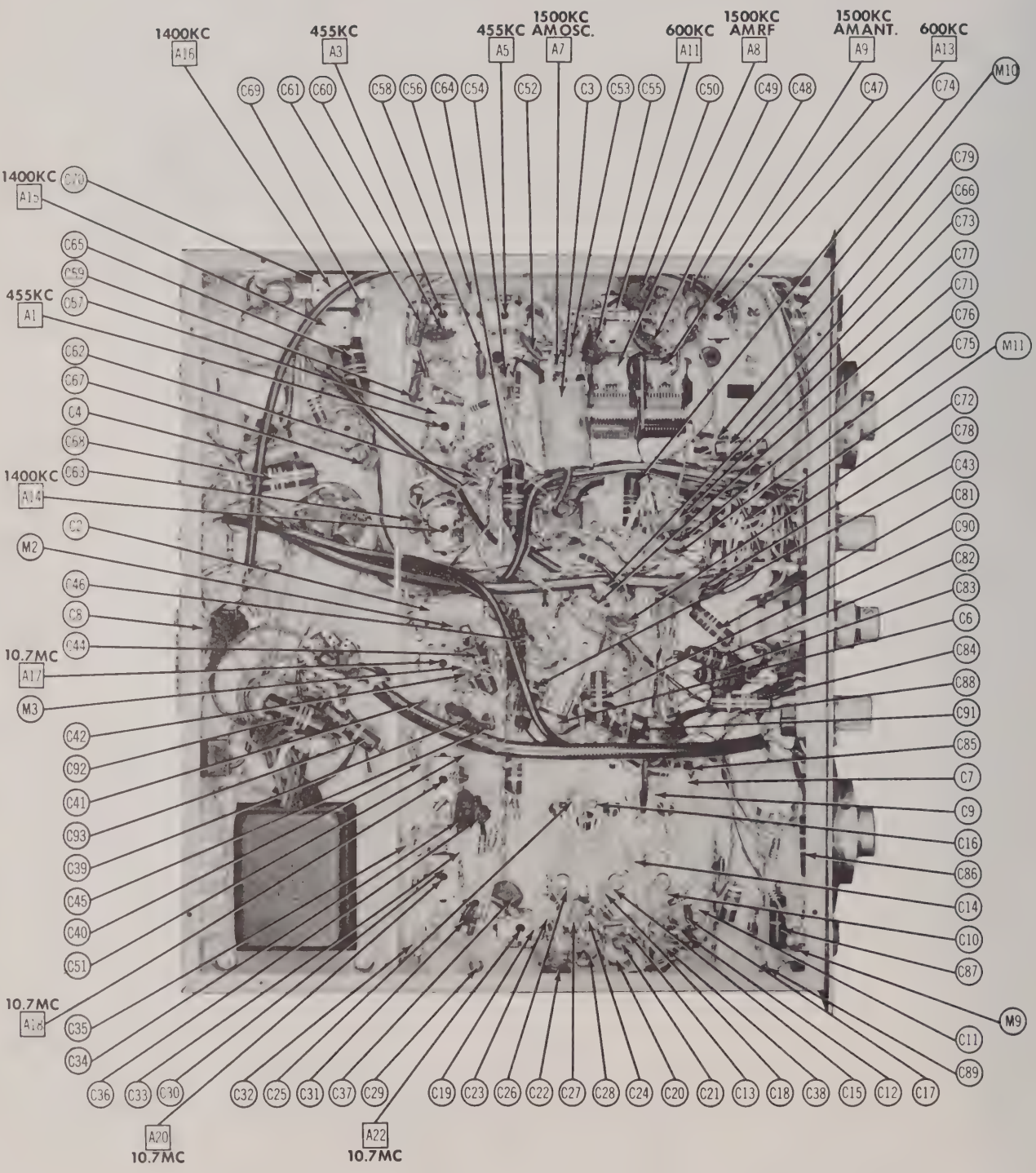
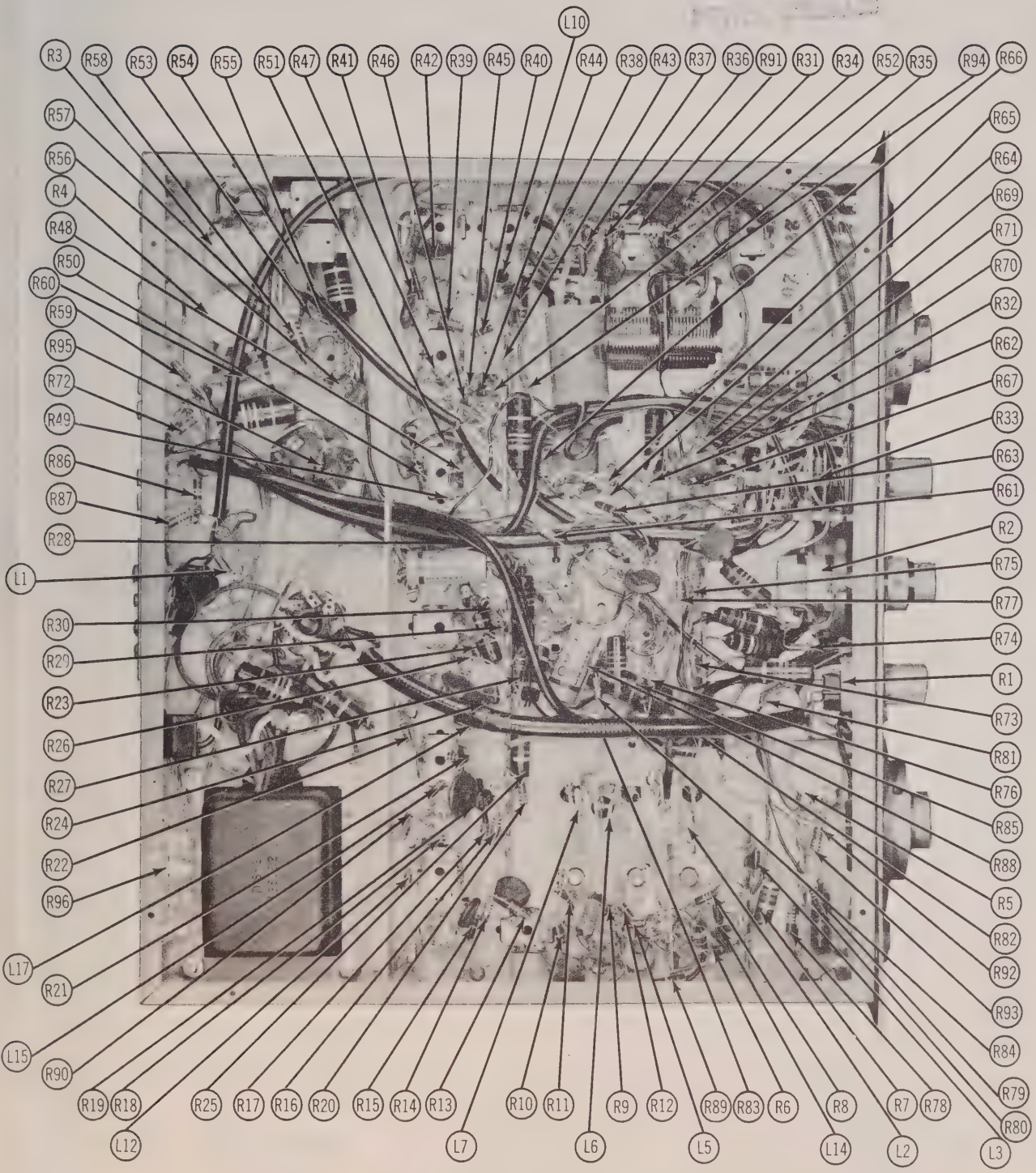
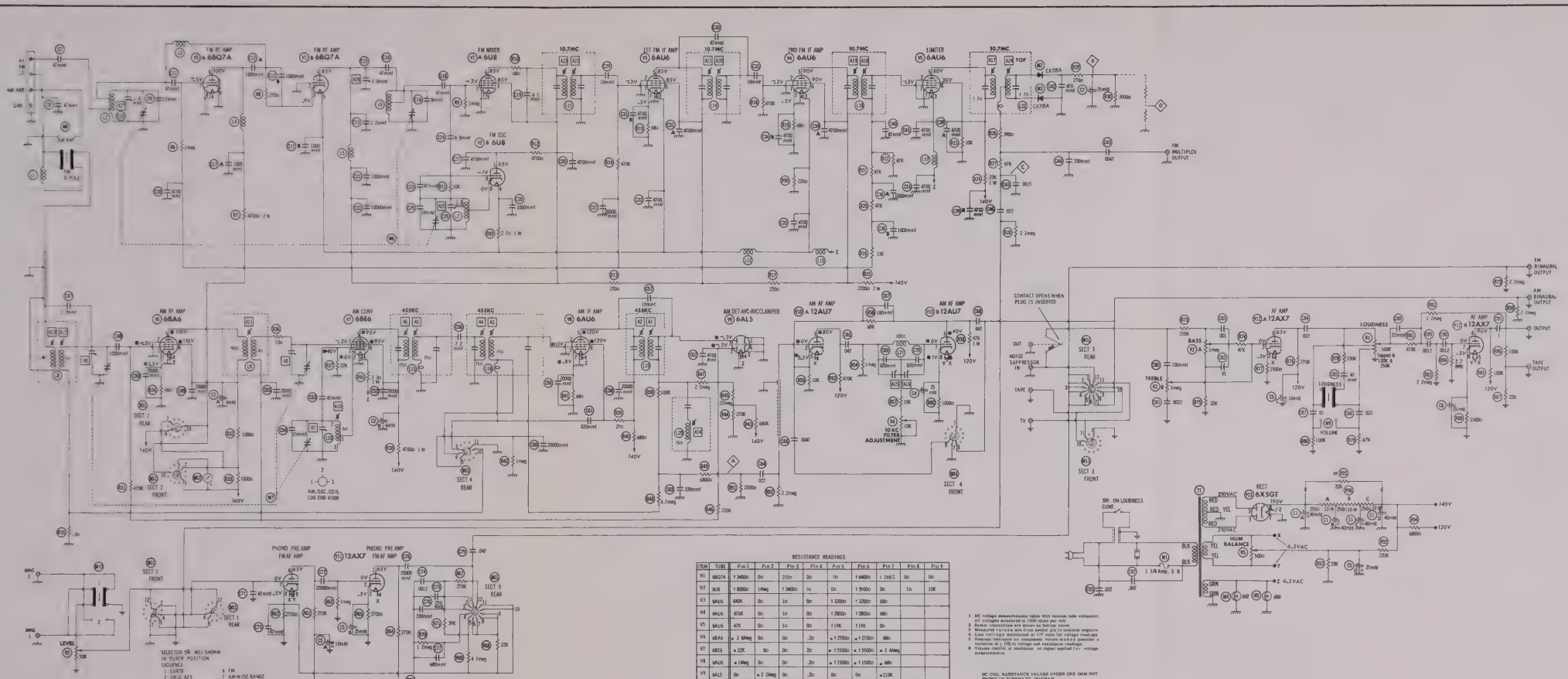


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	↑ 340Ω	0Ω	270Ω	0Ω	1Ω	↑ 640Ω	↑ 2MEG	0Ω	0Ω
V2	6U8	↑ 800Ω	1Meg	↑ 340Ω	1Ω	0Ω	↑ 350Ω	0Ω	1Ω	10K
V3	6AU6	640K	0Ω	1Ω	0Ω	↑ 320Ω	↑ 320Ω	68Ω		
V4	6AU6	470K	0Ω	1Ω	0Ω	↑ 280Ω	↑ 280Ω	68Ω		
V5	6AU6	47K	0Ω	1Ω	0Ω	↑ 19K	↑ 19K	0Ω		
V6	6BA6	∞ 2 Meg	0Ω	0Ω	∞	∞ ↑ 270Ω	∞ ↑ 270Ω	68Ω		
V7	6BE6	∞ 22K	0Ω	0Ω	∞	∞ ↑ 550Ω	∞ ↑ 550Ω	∞ 2 Meg		
V8	6AU6	∞ 1Meg	0Ω	0Ω	∞	∞ ↑ 150Ω	∞ ↑ 150Ω	∞ 68Ω		
V9	6AL5	0Ω	∞ 2 Meg	0Ω	∞	0Ω	0Ω	∞ 110K		
V10	12AU7	∞ ↑ 450K	2 Meg	10K	30K	30K	∞ ↑ 7K	1Meg	1200Ω	30K
V11	12AX7	↑ 300K	1Meg	2700Ω	30K	30K	↑ 300K	2 MEG	2700Ω	30K
V12	12AX7	↑ 280K	70K	1500Ω	30K	30K	↑ 105K	2.2Meg	1500Ω	30K
V13	6X5GT	NC.	0Ω	0Ω	TP	60Ω	TP	∞ 2Ω	30K	

ALL VOLTAGES MEASURED IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
∞ MEASURED IN "AM" POSITION
↑ MEASURED FROM PIN 8 OF V13
NC NO CONNECTION
TP TIE POINT.

1 DC voltage measurements taken with vacuum tube voltmeter, a/c voltages measured at 1000 ohms per volt.
2 Socket connections are shown as bottom views.
3 Measured values are from socket pin to common negative.
4 Line voltage maintained at 117 volts for voltage readings.
5 Tolerance of ± 10% on resistance readings and tolerance of ± 10% in voltage and resistance readings.
6 Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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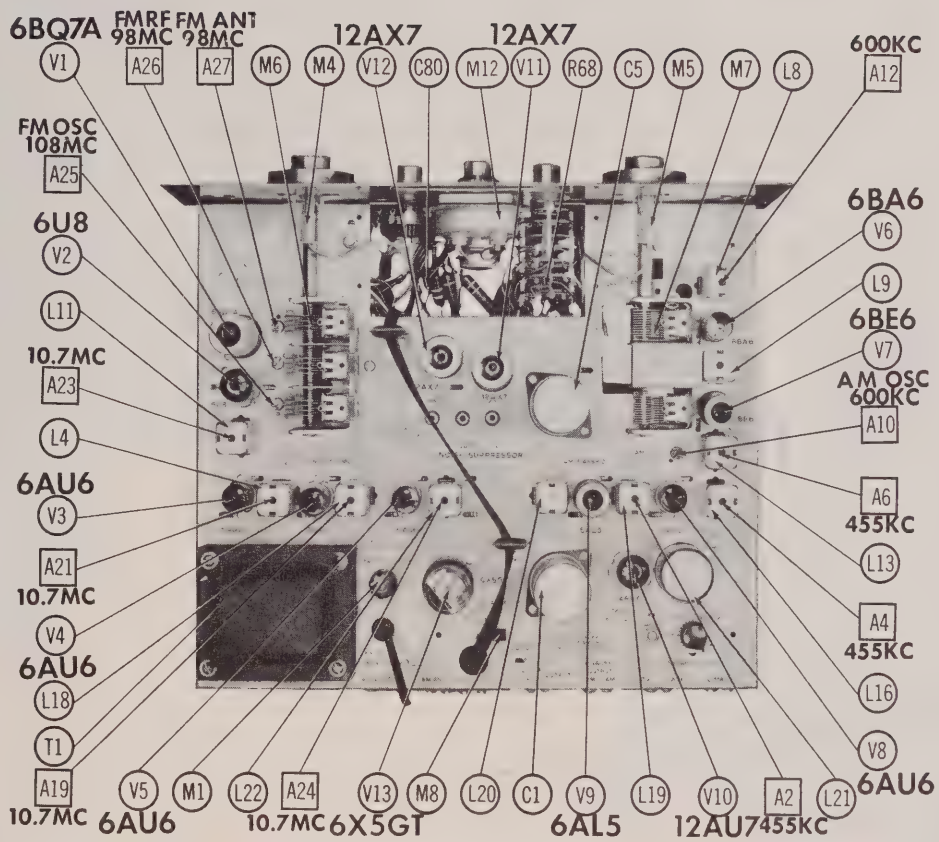

CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to AM antenna stator lug on AM tuning gang(front section). Low side to chassis.	455KC (400∿Mod)	AM	1600KC	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	Direct	"	1500KC	"	1500KC	"	A7, A8, A9	"
3.		Loop	600KC	"	600KC	"	A10, A11 A12, A13	"
4.		"	1400KC (10KC Mod)	"	1400KC	"	A14	Short A15 and A16. Adjust A14 for MINIMUM deflection.
5.		"	"	"	"	"	A15, A16	Short A14. Adjust A15 and A16 for MINIMUM deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓑ to chassis. The junction of these two resistors is alignment point Ⓓ as shown on the schematic. Short pin 9 of 6U8 (V2).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	.01MFD	High side to pin 2 (grid) of 6U8 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓑ. Common to chassis.	A17, A18 A19, A20 A21, A22 A23	Adjust for maximum deflection.
7.	"	"	"	"	"	DC probe to point Ⓒ. Common to point Ⓓ.	A24	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection. Short pin 9 of 6U8 (V2).

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to pin 2 (grid) of 6U8 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓑ. Low side to chassis.	A17, A18, A19, A20, A21, A22 A23	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
7.	"	"	"	"	"	Vert. Amp. to point Ⓒ. Low side to point Ⓓ.	A24	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of cross-over lines similar to Fig. 2. SLIGHTLY retouch A23 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	108MC (Unmod)	FM	108MC	DC probe to point Ⓑ. Common to chassis.	A25	Adjust for maximum deflection.
9.	"	"	92MC	"	92MC	"	L6	Adjust for maximum deflection by expanding or compressing coil turns.
10.	"	"	98MC	"	98MC	"	A26, A27	Adjust for maximum deflection.

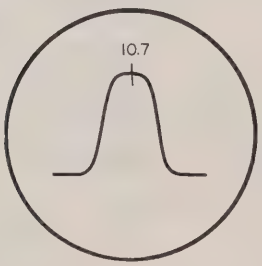

FIG. 1

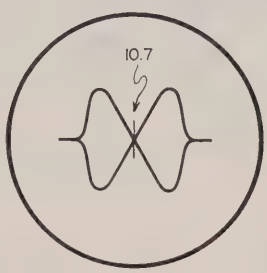

FIG. 2

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BQ7A	
V2	FM Mixer - Oscillator	6U8	
V3	1st. FM IF Amplifier	6AU6	
V4	2nd. FM IF Amplifier	6AU6	
V5	FM Limiter	6AU6	
V6	AM RF Amplifier	6BA6	
V7	AM Converter	6BE6	

ITEM No.	USE	TYPE	NOTES
V8	AM IF Amplifier	6AU6	
V9	AM Det. -AVC-AVC Clamper	6AL5	
V10	AM AF Amplifier	12AU7	
V11	FM AF Amp. Phono Preamp.	12AX7	
V12	AF Amplifier	12AX7	
V13	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA H. H. Scott PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▰40	200		AFH4-01-60	DO020	FP423	TMQ-16	D-130	R2342 *
B	■40	200			BR4025	TC58		MTD-4540	
C	▲40	200							
D	40	200							
C2	25	25		PRS25V25	BR252	TC26	TD-25-25	FM-0225	TVA-1205
C3A	4	250			BR425	TC50X	TD-4-250	MT-2504	TVA-1501
B	4	250			BR425	TC50X	TD-4-250	MT-2504	TVA-1501
C4	25	25		PRS25V25	BR252	TC26	TD-25-25	FM-0225	TVA-1205
C5A	▰10	450		AFH4-63	DO880	FP376.6		Q-295	TVL-4711.6
B	25	25				TC26			
C	■10	450							
D	▲25	25							
C6	25	25		PRS25V25	BR252	TC26	TD-25-25	FM-0225	TVA-1205

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA H. H. Scott PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C7	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C8	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C9	12				TCZ-12		TCO-12			
C10	1-8						532-B			
C11	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C12A	1000			BPD-2X001	DD2-102	DK069	ED2-001	DCD521	5HK-2D1	
B	1000									
C13	2. 2			NP0-SI2. 2	TCZ-2R2	Z006	TCO-2. 2		5TCCB-V22	
C14	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C15	1-8						532-B			
C16	8					Z015				
C17A	1000			BPD-2X001	DD2-102	DK069	ED2-001	DCD521	5HK-2D1	
B	1000									
C18	47			NP0-SI47	TCZ-47	Z033	ED-47	ZT-5447	5TCC-Q47	
C19	4. 7			NP0-SI4. 7	TCZ-4R7	Z010	TCO-4. 7	ZT-5547	5TCCB-V47	
C20	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C21	1000			BPD-001	DD-102	K069	ED-1000	DC-521	5HK-D1	
C22	10000			BPD-01	DD-103	K082	GP-10000	DC511	5HK-S1	
C23	47			NP0-SI47	TCZ-47	Z033	TCO-47	ZT-5447	5TCC-Q47	
C24	6. 8			NP0-SI6. 8	TCZ-6R8	Z013	TCO-6. 8	ZT-5568	5TCCB-V68	
C25	10			N750-SI10	TCN-10	N018	TC7-10	NT-541	5TCU-Q1	
C26	1-8									
C27	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C28	1000			BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C29	10			BPD-00001	DD-100	G018	ED-10	UC-541	5GA-Q1	
C30	. 47				TCZ-0R5		TCO-. 5			
C31A	4700			BPD-2X0047	DD2-502	DK079	ED-0047	UC-5247	5HK-2D47	
B	4700						ED-0047	UC-5247		
C32	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C33	10			BPD-00001	DD-100	G018	ED-10	UC-541	5GA-Q1	
C34A	4700			BPD-2X0047	DD2-502	DK079	ED-0047	UC-5247	5HK-2D47	
B	4700						ED-0047	UC-5247		
C35	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C36A	1000			BPD-2X001	DD2-102	DK069	ED2-001	DCD521	5HK-2D1	
B	1000									
C37	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	

PARTS LIST AND DESCRIPTIONS (Continued)
CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA H. H. Scott PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C38	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C39A	4700			BPD-2X0047	DD2-502	DK079	ED-0047	UC-5247	5HK-2D47	
B	4700						ED-0047	UC-5247		
C40	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C41	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C42	470									
C43	. 0047	400		BPD-0047	DD-472	CUB6D47	ED-0047	GEM-4247	4TM-D47	
C44	330			BPD-00033	DD-331	G056	ED-330	UC-5333	5GA-T33	
C45	. 0015	400		BPD-0015	DD-152	CUB6D15	ED-1500	GEM-4215	4TM-D15	
C46	. 022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C47	2. 2			NP0-SI 2. 2	TCZ-2R2	Z006	TCO-2. 2		5TCCB-V22	
C48	1000			BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C49	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C50	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C51	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C52	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C53	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C54	15			NP0-SI 15	TCZ-15	Z021	TCO-15		5TCC-Q15	
C55	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C56	2. 2			NP0-SI 2. 2	TCZ-2R2	Z006	TCO-2. 2		5TCCB-V22	
C57	10			BPD-00001	DD-100	G018	ED-10	UC-541	5GA-Q1	
C58	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C59	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C60	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C61	820			BPD-0008	D6-821	G066	ED-820	UC-5382	5GA-T82	
C62	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47	
C63	330			BPD-00033	DD-331	G056	ED-330	UC-5333	5GA-T33	
C64	. 022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C65	. 047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C66	. 0047	400		BPD-0047	DD-472	CUB6D47	ED-0047	GEM-4247	4TM-D47	
C67	180			BPD-00015	DD-181	G049	ED-180	UC-5318	5GA-T18	
C68	. 047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C69	820			BPD-0008	D6-821	G066	ED-820	UC-5382	5GA-T82	
C70	820			BPD-0008	D6-821	G066	ED-820	UC-5382	5GA-T82	
C71	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C72	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C73	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C74	. 0012	400		BPD-001	D6-122	CUB4D12	ED-1200	GEM-4212	4TM-D12	
C75	270			BPD-00027	DD-271	G054	ED-270	UC-5327	5GA-T27	
C76	330			BPD-00033	DD-331	G056	ED-330	UC-5333	5GA-T33	
C77	680			BPD-00068	DD-681	G065	ED-680	UC-5368	5GA-T68	
C78	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C79	. 047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C80	100			BPD-0001	DD-101	G042	ED-100	UC-531	5GA-T1	
C81	. 0022	400		BPD-0022	DD-222	CUB6D22	ED-0022	GEM-4222	6TM-D22	
C82	. 01	400		BPD-01	DD-103	CUB4S1	ED-10000	GEM-411	4TM-S1	
C83	. 001	400		BPD-001	DD-102	CUB6D1	ED-1000	GEM-421	6TM-D1	
C84	. 022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C85	47			BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C86	. 022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C87	. 01	400		BPD-01	DD-103	CUB4S1	ED-10000	GEM-411	4TM-S1	
C88	22			BPD-000022	DD-220	G024	ED-22	UC-5422	5GA-Q22	
C89	. 0012	400		BPD-001	D6-122	CUB6D12	ED-1200	GEM-6212	4TM-D12	
C90	. 0012	400		BPD-001	D6-122	CUB6D12	ED-1200	GEM-6212	4TM-D12	
C91	. 1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C92	. 047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C93	. 022	400		BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA H. H. Scott PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½		ABT-160		Q18-133XX	UDT-283	Loudness - tap @100K & 250K
B	Shaft			AK-9		Not Req.	Not Req.	Attach to R1A
C	Switch			KB-1		76-1	US-26	Attach to R1A
R2A	1Meg	½						Bass
B	1Meg	½						Treble
R3A	50K	½		AB-31	A47-50K-S	Q11-123	U35	Pre-amp. Level
B	Shaft			AK-9	RS-2	PQ	Not Req.	Attach to R3A
R4A	10K	½		AB-14	A47-10K-S	Q11-116	U20	10KC Filter
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	Attach to R4A
R5A	500Ω	½		AB-4	A47-500-S	Q11-103	U2	Hum Adjustment
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	Attach to R5A

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	H. H. Scott PART No.	IRC PART No.	
R6	1Meg			BTS-1Meg	
R7	4700Ω	2		BTB-4700	
R8	270Ω			BTS-270	
R9	1Meg			BTS-1Meg	
R10	68Ω			BTS-68	
R11	10K			BTS-10K	
R12	4700Ω			BTS-4700	
R13	220Ω			BTS-220	
R14	470K			BTS-470K	
R15	68Ω			BTS-68	
R16	33K			BTS-33K	
R17	220Ω			BTS-220	
R18	470K			BTS-470K	
R19	68Ω			BTS-68	
R20	47K			BTS-47K	
R21	47K			BTS-47K	
R22	47K			BTS-47K	
R23	10K			BTS-10K	
R24	22K	1		BTA-22K	
R25	2200Ω	2		BTB-2200	
R26	390Ω			BTS-390	
R27	47K			BTS-47K	
R28	2. 2Meg			BTS-2. 2Meg	
R29	270Ω			BTS-270	
R30	3900Ω			BTS-3900	
R31	470K			BTS-470K	
R32	1000Ω			BTS-1000	
R33	1000Ω			BTS-1000	
R34	68Ω			BTS-68	
R35	18Ω			BTS-18	
R36	10Ω			BTS-10	
R37	22K			BTS-22K	
R38	4700Ω	1		BTA-4700	
R39	27Ω			BTS-27	
R40	680Ω			BTS-680	
R41	68Ω			BTS-68	
R42	1Meg			BTS-1Meg	
R43	680K			BTS-680K	
R44	270K			BTS-270K	
R45	22Meg			BTS-22Meg	
R46	220K			BTS-220K	
R47	2. 2Meg			BTS-2. 2Meg	
R48	4. 7Meg			BTS-4. 7Meg	
R49	6800Ω			BTS-6800	
R50	100K			BTS-100K	
R51	2200Ω			BTS-2200	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	H. H. Scott PART No.	IRC PART No.	
R52	2. 2Meg			BTS-2. 2Meg	
R53	470K			BTS-470K	
R54	1Meg			BTS-1Meg	
R55	10K			BTS-10K	
R56	68K			BTS-68K	
R57	33K			BTS-33K	
R58	47K	1		BTA-47K	
R59	2. 2Meg			BTS-2. 2Meg	
R60	1000Ω			BTS-1000	
R61	270K			BTS-270K	
R62	2700Ω			BTS-2700	
R63	1Meg			BTS-1Meg	
R64	270K			BTS-270K	
R65	2700Ω			BTS-2700	
R66	33K			BTS-33K	
R67	270K			BTS-270K	
R68	22K			BTS-22K	
R69	4. 7Meg			BTS-4. 7Meg	
R70	1. 2Meg			BTS-1. 2Meg	
R71	39K			BTS-39K	
R72	2. 2Meg			BTS-2. 2Meg	
R73	220K			BTS-220K	
R74	47K			BTS-47K	
R75	22K			BTS-22K	
R76	270K			BTS-270K	
R77	1500Ω			BTS-1500	
R78	330K			BTS-330K	
R79	47K			BTS-47K	
R80	100K			BTS-100K	
R81	470K			BTS-470K	
R82	1. 2Meg			BTS-1. 2Meg	
R83	2. 2Meg			BTS-2. 2Meg	
R84	2. 2Meg			BTS-2. 2Meg	
R85	100K			BTS-100K	
R86	100K			BTS-100K	
R87	22K			BTS-22K	
R88	1500Ω			BTS-1500	
R89	2. 7Ω	1			
R90	220Ω			BTS-220	
R91	3. 3Ω	1			
R92	220K			BTS-220K	
R93	33K			BTS-33K	
R94	6800Ω			BTS-6800	
R95	22K			BTS-22K	Note 1
R96A	250Ω	10		PW10-250	
B	250Ω	10		PW10-250	
C	250Ω	10		PW10-250	

Note 1. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	H. H. Scott PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .57A	420VCT @ .090A	6. 3VAC @ 3. 9A	6. 3VAC @ . 8A	TR8-2					

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		H. H. Scott PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	RF Choke		19-1000		4602	1 Microhenry
L2	FM Ant. Coil					Tapped
L3	Cathode Choke		19-1000		4602	1 Microhenry
L4	RF Choke					. 33 Microhenry
L5	RF Choke		19-1000		4602	1 Micro henry
L6	FM RF Coil					Tapped
L7	FM Osc. Coil					Tapped
L8	AM Ant. Coil	TRV-AM-A				
L9	AM RF Coil	TRV-AM-M				
L10	AM Osc. Coil	17455-1				
L11	1st. FM IF		16-3487	FM-254	1463	
L12	Fil. Choke		19-1000		4602	1 Microhenry
L13	1st. AM IF	TRVS-455 IF				
L14	2nd. FM IF		16-3487	FM-254	1463	
L15	Fil. Choke		19-1000		4602	1 Microhenry
L16	2nd. AM IF	TRVS-455 IF				
L17	Fil. Choke		19-1000		4602	1 Microhenry
L18	3rd. FM IF		16-3487	FM-254	1463	
L19	3rd. AM IF	TRV-455D	16-6758	BC -353	12-C2	
L20	IF Trap	TRV-455T				
L21	10KC Filter					
L22	Ratio Det.	TRV10. 7D	17-3498	FM-255	1465	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			H. H. Scott PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	1 1/4A 125V			3131. 25 (3AG-S/B)	342003	MDL 1 1/4	HKP

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		H. H. Scott PART No.	SYLVANIA PART No.	
M2	CK705A		1N34A	Ratio Det. (Pigtail)
M3	CK705A		1N34A	Ratio Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	H. H. Scott PART No.	NOTES
M4	Lamp		FM Dial #47
M5	Lamp		AM Dial #44
M6	Tuning Cap.	GAV-3X16-P1	FM - 3 gang
M7	Tuning Cap.	CAV-3XAMP-1	AM - 3 gang (23-385MMF, 19-380MMF, 35-235MMF)
M8	Switch		Ant. Input - DPDT (Slide type)
M9	Switch		Loudness-DPDT (Slide type)
M10	Switch		Pickup -DPDT (Slide type)
M11	Switch		Function Selector (Wafer type)
M12	Meter		Tuning Indicator
A15	Trimmer Cap.	CMV-280	10KC
A16	Trimmer Cap.	CMV-280	10KC

SETCHELL-CARLSON MODEL P-62 (Ch. C-101)

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SETCHELL-CARLSON MODEL P-62

TRADE NAME	Setchell-Carlson Model P-62 (Ch. C-101)
MANUFACTURER	Setchell-Carlson Inc., New Brighton, Minn.
TYPE SET	Television Receiver
TUBES	Nineteen
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING 1.46 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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SETCHELL-CARLSON MODEL P-62 (Ch. C-101)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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SETCHELL-CARLSON
MODEL P-62 (Ch. C-101)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type control knobs from top.
2. Remove 6 metal screws. Remove rear cover.
3. Remove 4 chassis bolts from bottom of cabinet.
4. Remove chassis.

MODEL	CHASSIS
P-62	C-101

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 6 metal screws around front of cabinet. Remove front. Remove glass. Use extreme care when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

SPECIAL ADJUSTMENTS

A. Focus
Adjust Ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjust the horizontal hold control to synchronize the picture horizontally. If the horizontal hold control will not synchronize the picture, replace the horizontal oscillator tube (V14).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A12) located on top of chassis.

FUSES

One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

SETCHELL-CARLSON
MODEL P-62 (Ch. C-101)

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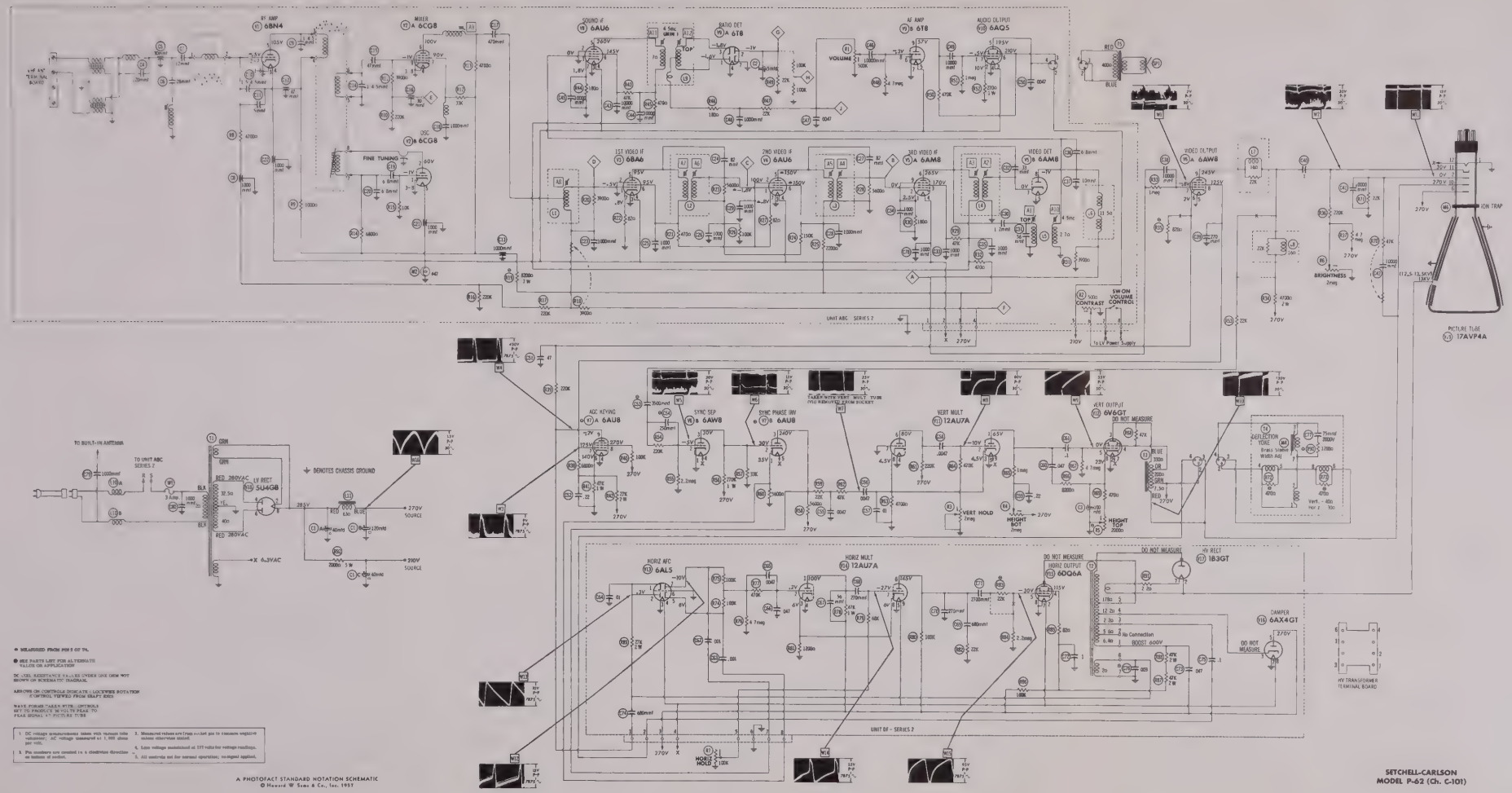
SETCHELL-CARLSON
MODEL P-62 (Ch. C-101)
SETCHELL-CARLSON
MODEL P-62 (Ch. C-101)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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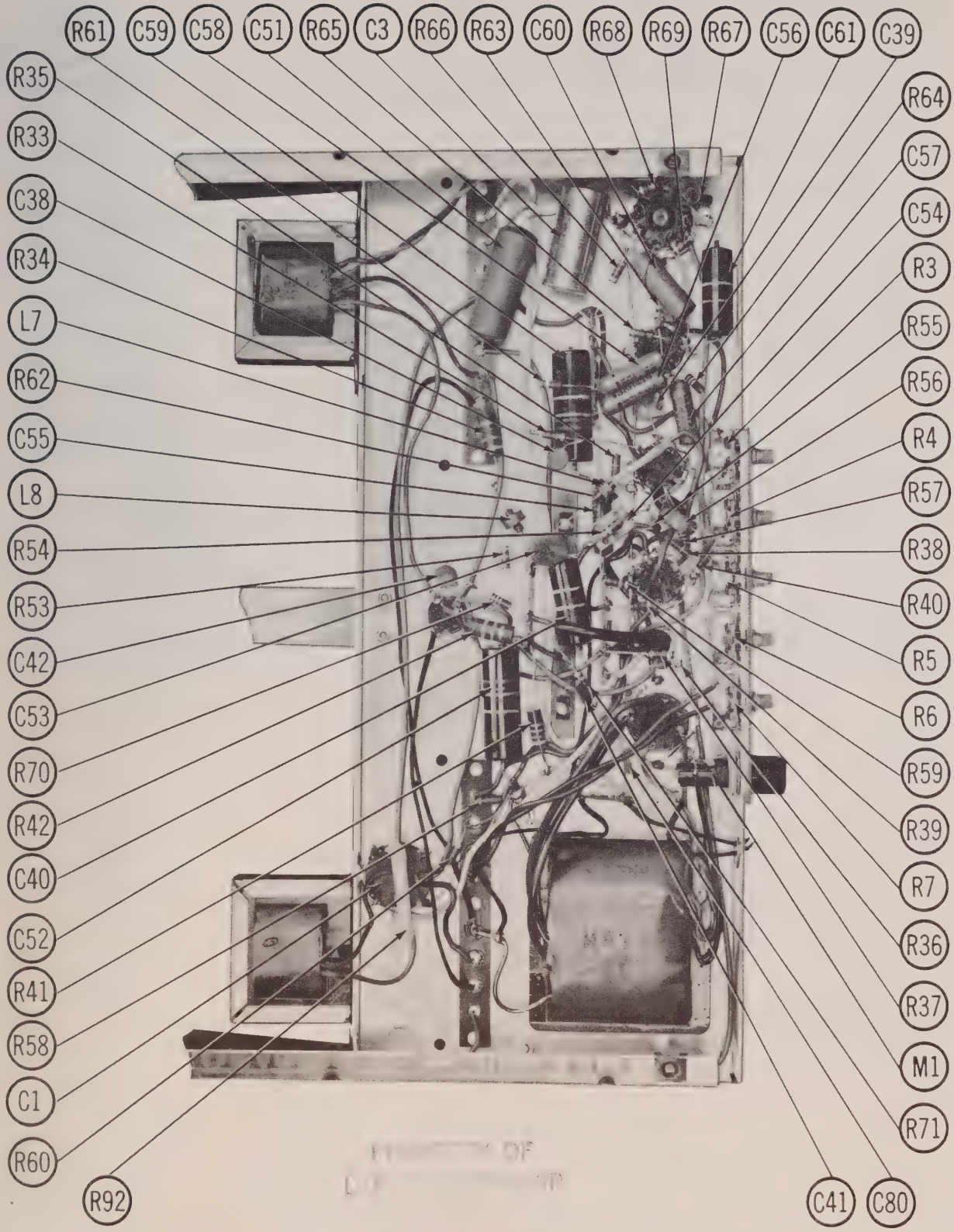
UNIT ABC SERIES 2
UNIT DF - SERIES 2
TO BUILT-IN ANTENNA
TO UNIT ABC SERIES 2
DENOTES CHASSIS GROUND
RF AMP 6BN4
MIXER 6CG8
OSC 6CG8
FINE TUNING
1ST VIDEO IF 6BA6
2ND VIDEO IF 6AU6
3RD VIDEO IF 6AM8
VIDEO DET 6AM8
SOUND IF 6AU6
RATIO DET 6T8
AF AMP 6T8
AUDIO OUTPUT 6AQ5
VOLUME
VIDEO OUTPUT 6AW8
BRIGHTNESS
ION TRAP
PICTURE TUBE 17AVP4A
SW ON VOLUME CONTROL
AGC KEYING 6AU8
SYNC SEP 6AW8
SYNC PHASE INV 6AU8
VERT MULT 12AU7A
VERT OUTPUT 6V6GT
DO NOT MEASURE
VERT HOLD
HEIGHT BOT
HEIGHT TOP
DEFLECTION YOKE
HORIZ AFC 6AL5
HORIZ MULT 12AU7A
HORIZ OUTPUT 6DQ6A
HV RECT 1B3GT
DAMPER 6AX4GT
No Connection
BOOST 600V
HORIZ HOLD
HV TRANSFORMER TERMINAL BOARD
LV RECT 5U4GB
RED 280VAC
BLK
GRN
BLUE
270V SOURCE
210V SOURCE
6.3VAC
PRIMARY
SECONDARY
TAKEN WITH VERT MULT TUBE FULL RESISTANCE FROM SOCKET
MEASURED FROM PIN 5 OF T4.
SEE PARTS LIST FOR ALTERNATE VALUES OR APPLICATION
DC VOLTAGE MEASUREMENTS TAKEN WITH VACUUM TUBE VOLTMETER; AC VOLTAGE MEASURED AT 1,000 OHMS PER VOLT.
PIN NUMBERS ARE CONSIDERED IN A CLOCKWISE DIRECTION WHEN VIEWED FROM BOTTOM OF SOCKET.
MEASURED VALUES ARE FROM CHASSIS TO SPECIFIED PIN OF TUBE SOCKET UNLESS OTHERWISE STATED.
LINE VOLTAGE MAINTAINED AT 117 VOLTS FOR VOLTAGE READINGS.
ALL CONTROLS SET FOR NORMAL OPERATION; NO SIGNAL APPLIED.



CHASSIS-BOTTOM VIEW

SET 346 FOLDER 15

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Remove the mixer oscillator tube (V2) from its socket. This will disable the local oscillator and reduce the possibility of erronous indications. Connect the negative lead of a 9 volt battery to point Ⓕ. Positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to point Ⓑ. Low side to chassis.	44.5MC (10MC Swp)	45.75MC 41.25MC	Any	Vert. Amp. thru 10K to point Ⓐ. Low side to chassis.	A1, A2, A3	Adjust for response curve similar to Fig. 1. Adjust to place 48.75MC marker at 50% and 44.25MC marker in trap notch as in Fig. 1.
2.	"	High side to point Ⓒ. Low side to chassis.	"	"	"	"	A4, A5	"
3.	"	High side to point Ⓓ. Low side to chassis.	"	"	"	"	A6, A7	"
4.	"	High side to point Ⓔ. Low side to chassis.	"	"	"	"	A8, A9	Adjust for response similar to Fig. 1. Repeat steps 1 thru 4 if necessary to obtain proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓖ to chassis. The junction of these two resistors is alignment point Ⓗ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	Direct	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point Ⓖ. Common to chassis.	A10, A11	Adjust for maximum deflection.
6.	"	"	"	"	DC probe to point Ⓙ. Common to point Ⓗ.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to point Ⓐ. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point Ⓖ. Low side to chassis.	A10, A11	Disconnect stabilizing capacitor (C2). Adjust for curve of maximum amplitude and symmetry as in Fig. 2.
6.	"	"	"	"	"	Vert. Amp. to point Ⓙ. Low side to chassis.	A12	Reconnect C2. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A11 for maximum amplitude and straightness of crossover lines.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

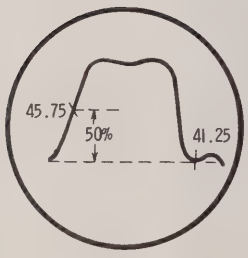


FIG. 1

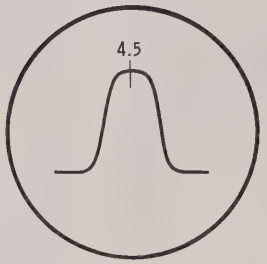


FIG. 2

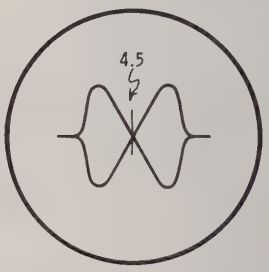
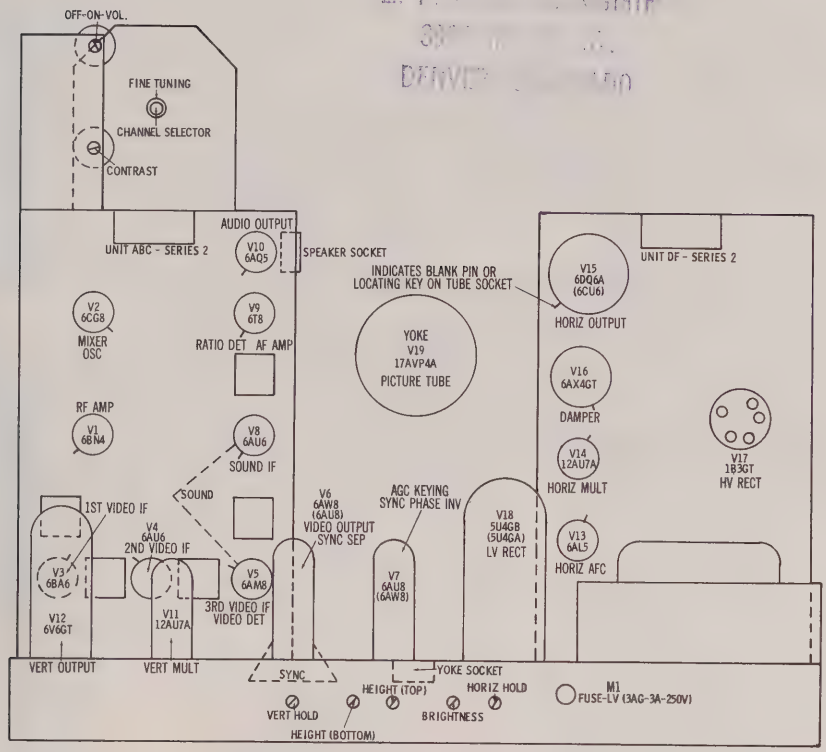


FIG. 3

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V18, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, V6, V19, V7
No pic, no sound, has snow - V1, V2
No pic, has sound, has raster - V6, V19
Has pic, no sound - V8, V9, V10
Overloaded picture - V7

SYNC FAILURE
No vert. sync - V6, V7, V11
No horiz. sync - V6, V7, V13
No vert. or horiz. sync - V6, V7

SWEEP FAILURE
No raster, has sound - V13, V14, V15, V16, V17
No vertical deflection - V11, V12
Poor vert. linearity or foldover - V11, V12
Poor horiz. linearity or foldover - V14, V15, V16
Narrow picture - V14, V15, V16
Vert. off freq. - V11
Horiz. off freq. - V14

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	R.F. Amplifier	6BH4	
V2	Mixer-Oscillator	6CG8	
V3	1st Video IF Amplifier	6BA6	
V4	2nd Video IF Amplifier	6AU6	
V5	3rd Video IF Amplifier-Video Detector	6AM8	
V6	Video Output-Sync Separator	6CW8	Note 1
V7	AGC Keying-Sync Phase Inverter	6AU8	Note 1
V8	Sound IF Amplifier	6AU8	

ITEM No	USE	TYPE	NOTES
V9	Ratio Det.-AF Amplifier	6T8	
V10	Audio Output	6AQ8	
V11	Vert. Mult.	12AU7A	
V12	Vert. Output	6V6GT	
V13	Horiz. AFC	6AL5	
V14	Horiz. Mult.	12AU7A	
V15	Horiz. Output	6DQ6A	Note 2.
V16	Damper	6AX4GT	
V17	B+ Rectifier	1B3GT	
V18	I.V Rectifier	5U4GB	

Note 1. 6AU8 or 6AW8 may be used in this application.
Note 2. 6CU8 may be used in some versions.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	Setchell-Carlson PART No	CBS PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	
V19	17AVP4A	17AVP4A ①	17AVP4A ① 17AVP4	17AVP4A ② 17AVP4	① Aluminized ② Silver screen #5

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	Setchell-Carlson PART No	AEROVOX PART No	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No	SPRAGUE PART No
C1A	40	350	C-101	AFH3-29-95	FP220-5	UCD-81	C-013		
B	40	350			*TC78	TYD-40-350	CLMD-81	SMT-4540	
C	40	350							
C2	5	150		PRS150V4	BUH4-150	TC40	TD-4-150	FM-1504	TVA-1403
C3	100	50		PRS50V100	SBU005	TC250	TD-100-50	MTH-5010	TVA-1310

* Non-catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	Setchell-Carlson PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No
C4	130			BPD-00013	DD-12	C044	ED-130	UC-5328	5GA-T13
C5	30								
C6	25								
C7	13								
C8	1800			EF-001	MFT-1000				503C-D1
C9	1-4.5				538-5		533-B		
C10	1.5-4.5				538-8		533-B		
C11	5			SI 5	DD-0560	C031	SD-5	ET-556	5GA-V5
C12	47								
C13	1000			EF-001	MFT-1000				503C-D1
C14	1-4.5				538-5		533-B		
C15	47								
C16	30								
C17	470			BPD-00047	DD-471	KD60	ED-470		5GA-T47
C18	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C19	6.8								
C20	6.8								
C21	1000			EF-001	MFT-1000				503C-D1
C22	1000			EF-001	MFT-1000				503C-D1
C23	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C24	.33		C-103						
C25	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C26	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C27	.33		C-103						
C28	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C29	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C30	1.5			NPO-SI 1					
C31	56			BPD-00005	DD-560	G036	ED-56	UC-5456	5GA-Q56
C32	.33		C-103						
C33	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C34	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C35	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C36	5.6			NPO-SI5.6	TCZ-5R6	T707		ET-5566	57CCD-V56
C37	10		C-102	BPD-00001	DD-10	G018		UC-446	5GA-Q
C38	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C39	270			1468-00027					MS-327
C40	.047	600		P-6829-1	DP-104	CUB4P1		GEM-401	4TM-P1
C41	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C42	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C43	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C44	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C45	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C46	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C47	.047	600		BPD-0047	DD-473	CUB4D47	GP-4700	GEM-4247	4TM-D47
C48	1000			BPD-001	DD-102	KD69	ED-1000	DC52	5HK-D1
C49	10000			BPD-01	DD-103	KD82	GP-10000	DC51	5HK-S1
C50	.0047	400		BPD-0047	DD-472	CUB4D47	GP4-700	GEM-4247	4TM-D47
C51	.47	200		P-6824-47		CUB2P47		GEM-3047	2TM-P47
C52	.22	400		P-6820-23		CUB4P23		GEM-4023	4TM-P23
C53	3500			BPD-0032					
C54	350			1468-00028					MS-336
C55	.0047	600		BPD-0047	DD-472	CUB4D47	GP-4700	GEM-4247	4TM-D47
C56	.0047	600		BPD-0047	DD-472	CUB4D47	GP-4700	GEM-4247	4TM-D47
C57	.01	400		BPD-01	DD-103	CUB4E	GP-10000	GEM-414	4TM-S1
C58	.0047	600		BPD-0047	DD-472	CUB4D47	GP-4700	GEM-4247	4TM-D47
C59	.22	400		P-6820-23		CUB4P23		GEM-4023	4TM-P23
C60	.047	600		BPD-05	DP-503	CUB4S47		GEM-4547	4TM-S47
C61	.1	400		P-6819-1	DP-103	CUB4P1		GEM-401	4TM-P1
C62	.001	600		BPD-001	DD-102	CUB4D1	GP-1000	GEM-421	4TM-D1
C63	.001	600		BPD-001	DD-102	CUB4D1	GP-1000	GEM-421	4TM-D1
C64	.01	600		BPD-01	DD-103	CUB4E	GP-10000	GEM-414	4TM-S1
C65	.0047	600		BPD-0047	DD-473	CUB4D47	GP-4700	GEM-4247	4TM-D47
C66	.047	600		BPD-05	DP-503	CUB4S47		GEM-4547	4TM-S47
C67	56			1468-00006					MS-456
C68	270		C-102	1468-00027					MS-327
C69	680			1467-00068					MS-368
C70	270		C-102	1468-00027					MS-327
C71	3700			612700	D6-372	K075	GP-3700	UC-5327	5GA-D37
C72	.1	400		P-6819-1	DP-104	CUB4P1		GEM-401	4TM-P1
C73	.047	600		BPD-05	DP-503	CUB4S47		GEM-4547	4TM-S47
C74	68			1467-00068					MS-368
C75	.1	400		P-6819-1	DP-104	CUB4P1		GEM-401	4TM-P1

CAPACITORS (cont)

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	Setchell-Carlson PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.
C76	003	600		BPD-0033	DD-303	CUB3D3	GP-3000	GEM-833	6TM-D3
C77	75	3000	C-111						Note 3
C78	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1
C79	1000			BPD-001	DD-102	KD69	ED-1000	DC52	5HK-D1
C80	1000			BPD-001	DD-103	KD69	ED-1000	DC52	5HK-D1

Note 1. Some versions may use 3700MMF in this application.
Note 2. Some versions may use 270MMF in this application.
Note 3. Some versions may use .0015MFD in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Setchell-Carlson PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	V-808	AB-50	A47-500K-2	Q13-133	U48	Volume
B	Shaft		Not Req.	AK-3	Not Req.	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	KB-1	SWE-13	76-1	12S-2S	Attach to R1A
R2A	500Ω	½	V-809	B-4	A47-500-8	Q11-103	U2	Contrast
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	2Meg	½	V-803	BX-75	A47-2Meg-8	Q11-139	SU-58	Vert. Hold
B	Shaft		Not Req.	Not Req.	FKS-1, 4	SQ	Not Req.	Attach to R3A
R4A	2Meg	½	V-803	BX-75	A47-2Meg-8	Q11-139	SU-58	Height (Bottom)
B	Shaft		Not Req.	Not Req.	FKS-1/4	SQ	Not Req.	Attach to R4A
R5A	2000Ω	½	V-801	AB-105		Q17-111	U7	Height (Top) - Note 1
B	Shaft		Not Req.	AK-1		SQ	Not Req.	Attach to R5A
R6A	2Meg	½	V-803	BX-75	A47-2Meg-8	Q11-139	SU-58	Brightness
B	Shaft		Not Req.	Not Req.	FKS-1/4	SQ	Not Req.	Attach to R6A
R7A	100K	½	V-802	BX-40	A47-100K-8	Q11-138	SU-61	Horiz. Hold
B	Shaft		Not Req.	Not Req.	FKS-1/4	SQ	Not Req.	Attach to R7A

Note 1. Some versions may use a 3000Ω control in this application with same part #V-801.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Setchell-Carlson PART No.	IRC PART No.	
R8	4700Ω			BTS-4700	
R9	3000Ω			BTS-3000	
R10	220K			BTS-220K	
R11	330Ω			BTS-330	
R12	33K			BTS-33K	
R13	4700Ω			BTS-4700	
R14	6800Ω			BTS-6800	
R15	10K			BTS-10K	
R16	220K			BTS-220K	
R17	220K			BTS-220K	
R18	2800Ω			BTS-3900	
R19	2300Ω	7		PW10-8300	Note 1
R20	1900Ω				
R21	470Ω			BTS-470	
R22	82Ω			BTS-82	
R23	5600Ω				
R24	150K			BTS-150K	
R25	3200Ω			BTS-3200	
R26	100K			BTS-100K	
R27	82Ω			BTS-82	
R28	5600Ω			BTS-5600	
R29	47K			BTS-47K	
R30	180Ω			BTS-180	
R31	3900Ω			BTS-3900	
R32	470Ω			BTS-470	
R33	1Meg			BTS-1Meg	
R34	4700Ω	3		BTS-4700	
R35	830Ω			BTS-830	Note 3
R36	220K			BTS-220K	
R37	4.7Meg			BTS-4.7Meg	
R38	5600Ω			BTS-5600	
R39	330K			BTS-330K	
R40	100K			BTS-100K	
R41	47K	1		BTS-47K	
R43	27K	2		BTS-27K	
R44	47K			BTS-47K	
R45	180Ω			BTS-180	
R46	470Ω			BTS-470	
R47	82Ω			BTS-82	
R48	33K			BTS-33K	
R49	4.7Meg			BTS-4.7Meg	
R50	22K			BTS-22K	
R60	470K			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Setchell-Carlson PART No.	IRC PART No.	
R51	1Meg			BTS-1Meg	
R52	270Ω	1		BTA-270	
R53	22K			BTS-22K	
R54	220K			BTS-220K	
R55	2.2Meg			BTS-2.2Meg	
R56	270K	1		BTA-270K	
R57	33K			BTS-33K	
R58	5600Ω			BTS-5600	
R59	22K			BTS-22K	
R60	5600Ω			BTS-5600	
R61	22K			BTS-22K	
R62	47K			BTS-47K	
R63	4700Ω			BTS-4700	
R64	470K			BTS-470K	
R65	1Meg			BTS-1Meg	
R66	5300Ω			BTS-5300	
R67	4.7Meg			BTS-4.7Meg	
R68	47K			BTS-47K	
R69	470Ω			BTS-470	
R70	47K			BTS-47K	
R71	22K			BTS-22K	
R72	4700				Note 4
R73	470Ω				Note 4
R74	100K				
R75	100K				
R76	4.7Meg				
R77	470K				
R78	47K	1			
R79	56K				
R80	100K				
R81	1200Ω				
R83	33K				
R83	22K				
R84	2.2Meg			BTS-2.2Meg	
R85	82Ω			BTS-82	
R86	100K			BTS-100K	
R87	47K	2		BTS-47K	
R88	47K	2		BTS-47K	
R89	27K	2		BTS-27K	
R90	1200Ω				
R91	5.6Ω				Note 6
R92	2000Ω	5		PW7-2000	
R93					

Note 1. Some versions may use an 8000Ω ⑤ TW in this application.
Note 2. Not used in some versions.
Note 3. Some versions may use an 820Ω in this application.
Note 4. Some versions may use an 8800Ω in this application.
Note 5. Some versions may use an 120Ω in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Setchell-Carlson PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
T1	117VAC	585VCT	5V	6.3V	T-100					
	① 1.46A	② .100A	③ 3A	④ 8A						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA								
		Setchell-Carlson PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Horiz. Output Trans.	T-123 ①	FB640-2 *	HVO-54-2*		X1292 *	A-8255② *	FLY-762 *	D-492 *
T3	Vert. Output Trans.	T-101	21900 ③					26575 ③	
T4A	Yoke(90°Horiz. (19.5MH) Vert.(30.5MH)	Y-100 ④	DF907 ⑤	MDF-92 ⑤	235D1 ⑤	Y90F19/43 ⑤	DY-18A ⑤	Y-18 ⑤	Y-41-1 ⑤
B									

① Used in unit series DF-2.
② Drill new mounting hole(s).
③ Connect terminal #3 to terminal #. Connect terminal #4 to terminal #5. Then connect terminal #1 to plate, terminals #2 and #3 to screen, terminals #4 and #5 to yoke socket pin #3, terminal #13 to yoke socket pin #3.
④ Does not include yoke rear cover and centering magnet (Setchell-Carlson part #Y-402), resistors R72, R73, R90, nor cap. C77.
⑤ Connect horizontal damping network across yoke terminals #3 and #7. Use original if necessary.
⑥ Use original yoke rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	5	5		5	5	5	5
4	4	4		4	4	4	6
3	4	4		4	4	4	7
1	3	3		2	2	2	2
6	2	7		7	7	7	3
7	1	8		8	8	8	4

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRI	SEC	Setchell-Carlson PART No	Halldorson PART No	Merit PART No	Thordarson PART No	Triad PART No
T5	5.4KΩ	3-4Ω	T-102	Z2000	A-2930	A-3877	24651

① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V C IMP	Setchell-Carlson PART No	QUAM PART No.	RCA TYPE No	
SP1	8"	PM	3-4Ω	W-100	8A1	224SB	

COILS (RF-IF)

ITEM No	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Setchell-Carlson PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	1st. Video IF	0Ω			T-130			Tapped
L2	2nd. Video IF	.1Ω	.1Ω		T-121			
L3	3rd. Video IF	.1Ω	.1Ω		T-131			
L4	4th. Video IF	.1Ω	.1Ω		T-132			
L5A	4.5MC Trap	0Ω			T-117			
B	Sound IF	2.7Ω						
L6	Series Peaking Coil	11.5Ω						353 Microhm rise
L7	Series Peaking Coil	18Ω		L-110	19-4400 *	TV-190 *	6136 *	400 Microhenries, wound on 33K resistor
L8	Shunt Peaking Coil	18Ω		L-110	19-4400 *	TV-190 *	6136 *	400 Microhenries, wound on 22K resistor Tertiary winding -, T6
L9	Ratio Detector	T6	3.6ΩCT	T-104				
L10A	Line Choke	0Ω						
B	Line Choke	0Ω						

* Parallel with 22K resistor.

FILTER CHOKE

ITEM No	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT (1000 ~c)	Setchell-Carlson PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
L11	180A	63Ω	1.96 Hy.	L-100	C5040 ①	C-2994 ①	C-2327 ①	26643	C-31X

① Drill one new mounting hole.

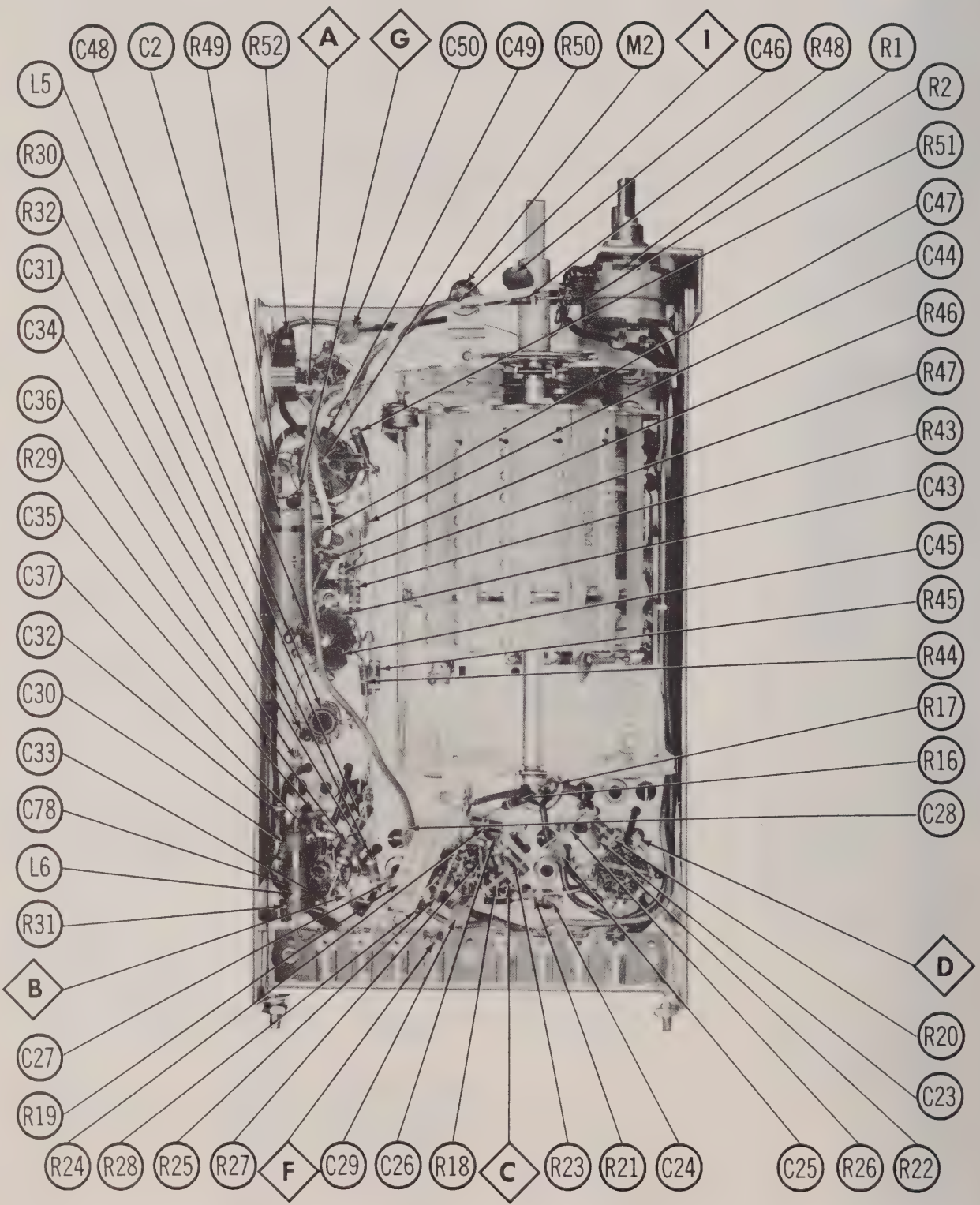
FUSES

ITEM No	TYPE	RATING	REPLACEMENT DATA					
			Setchell-Carlson PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 250V			F-100	342003. (3AG-3A)	342003	AGC 3	HKP

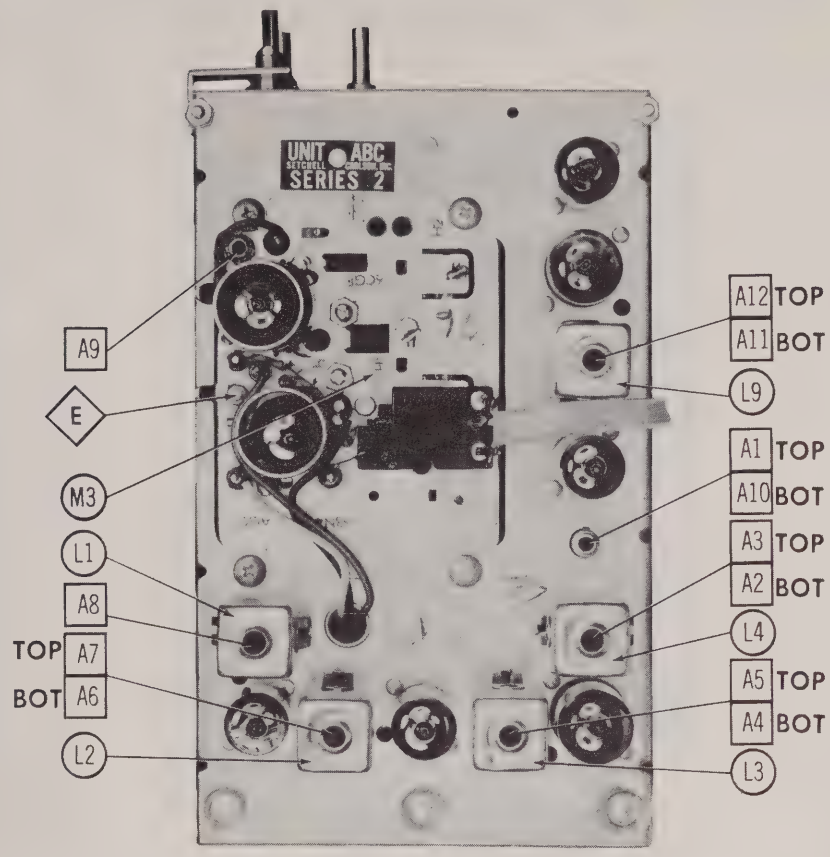
MISCELLANEOUS

ITEM No.	PART NAME	Setchell-Carlson PART No.	NOTES
M2	Dial Lamp		#47
M3	Tuner	N-4037	VHF, 12 position
M4	Width Sleeve	Y-103	
M5	Centering Device	Y-102	Includes yoke cover
M6	Ion Trap		
	Cabinet	H-114	
	Knob	K-123	Channel Selector
	Knob	K-116	Fine tuning
	Knob	K-103	Volume, contrast
	Handle	H-108	
	Glass	G-100	Safety, tinted

SETCHELL-CARLSON
MODEL P-62 (Ch. C-101)



RF-IF CHASSIS-BOTTOM VIEW



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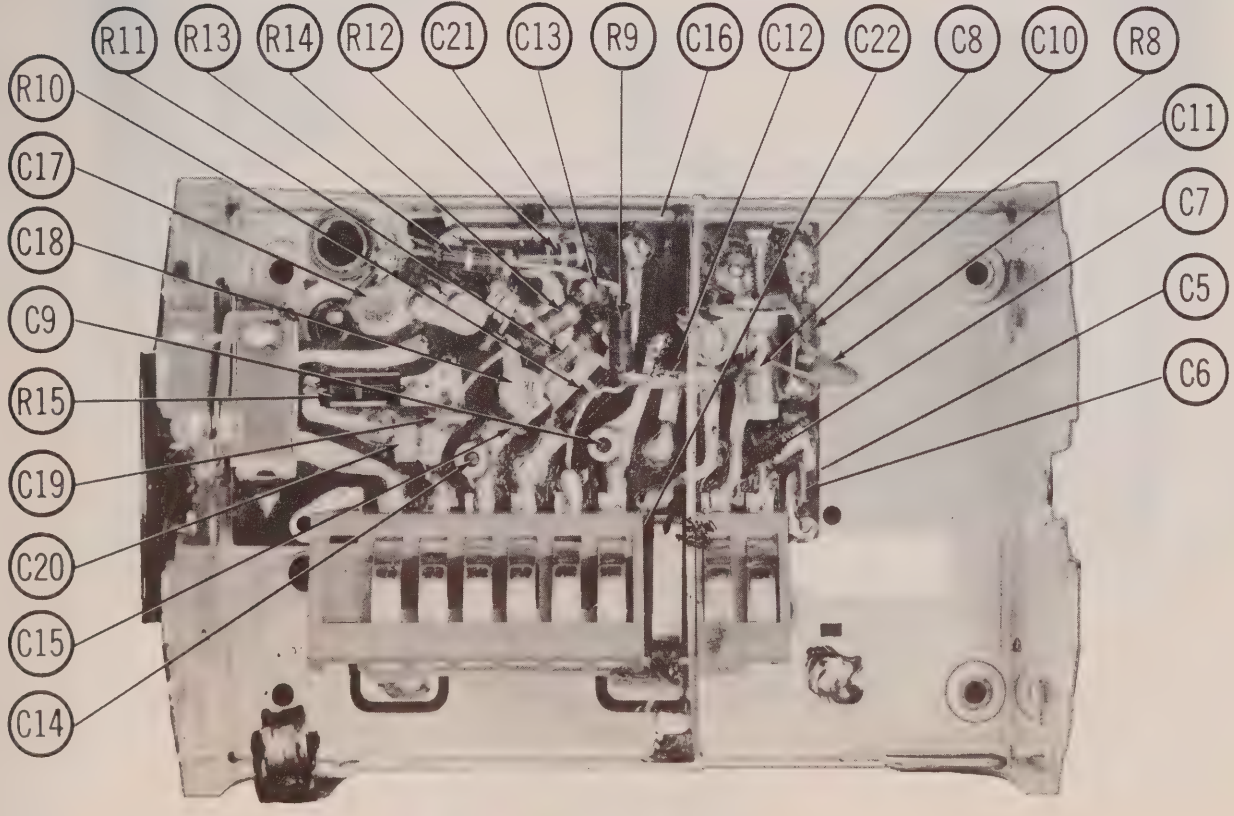
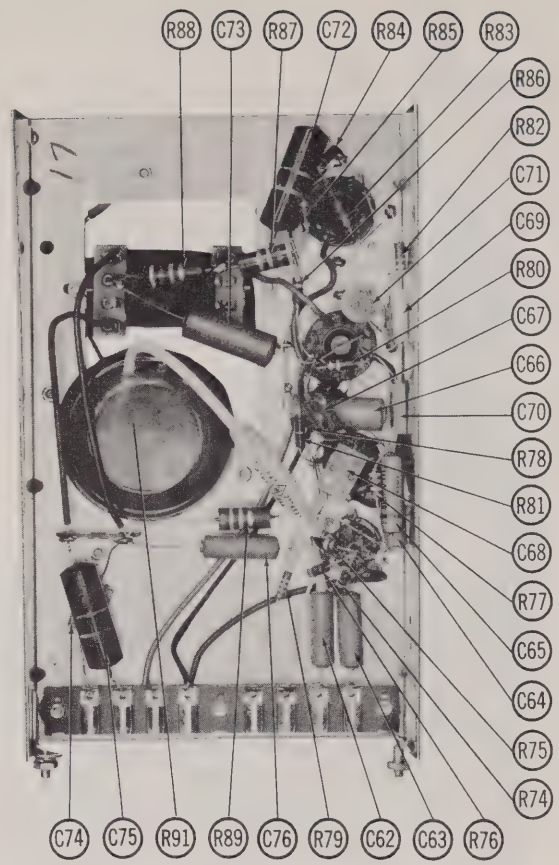
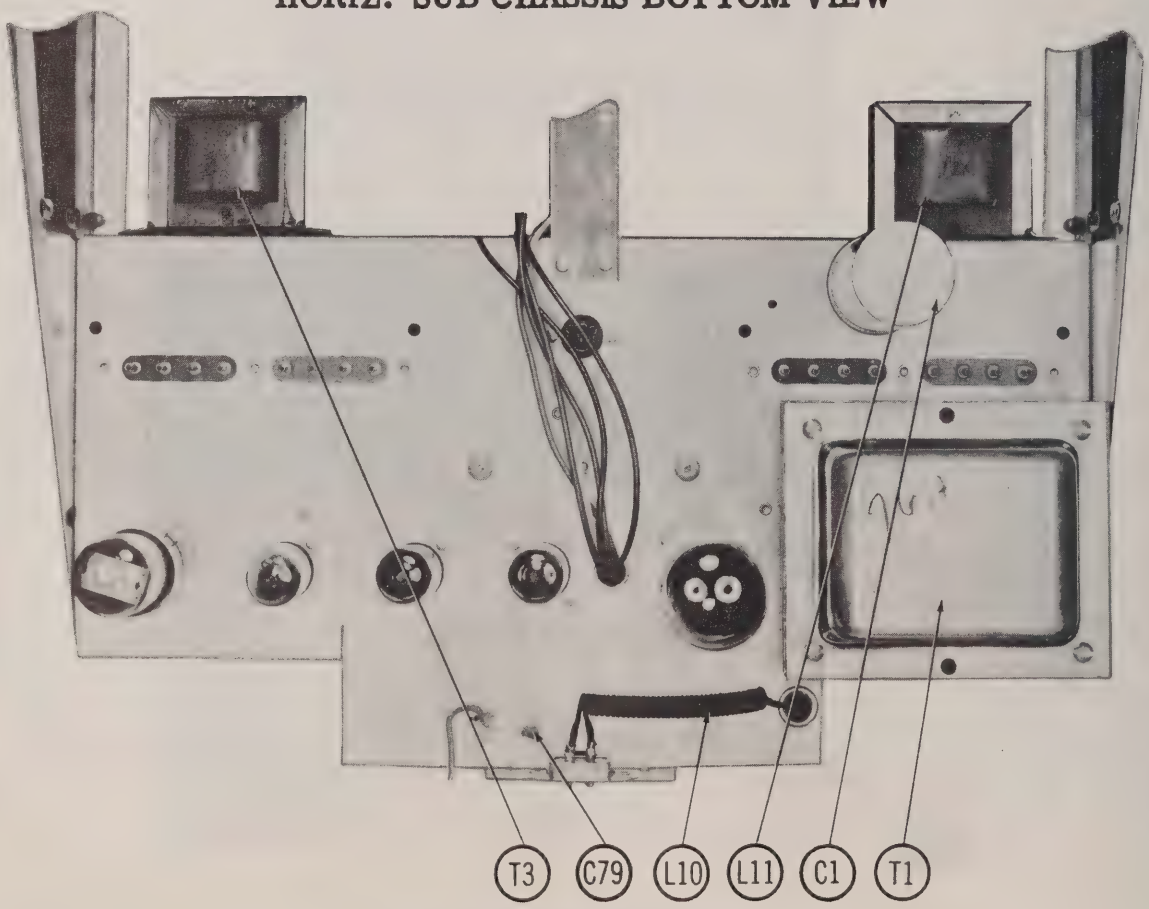


RF TUNER-BOTTOM VIEW



HORIZ. SUB CHASSIS BOTTOM VIEW

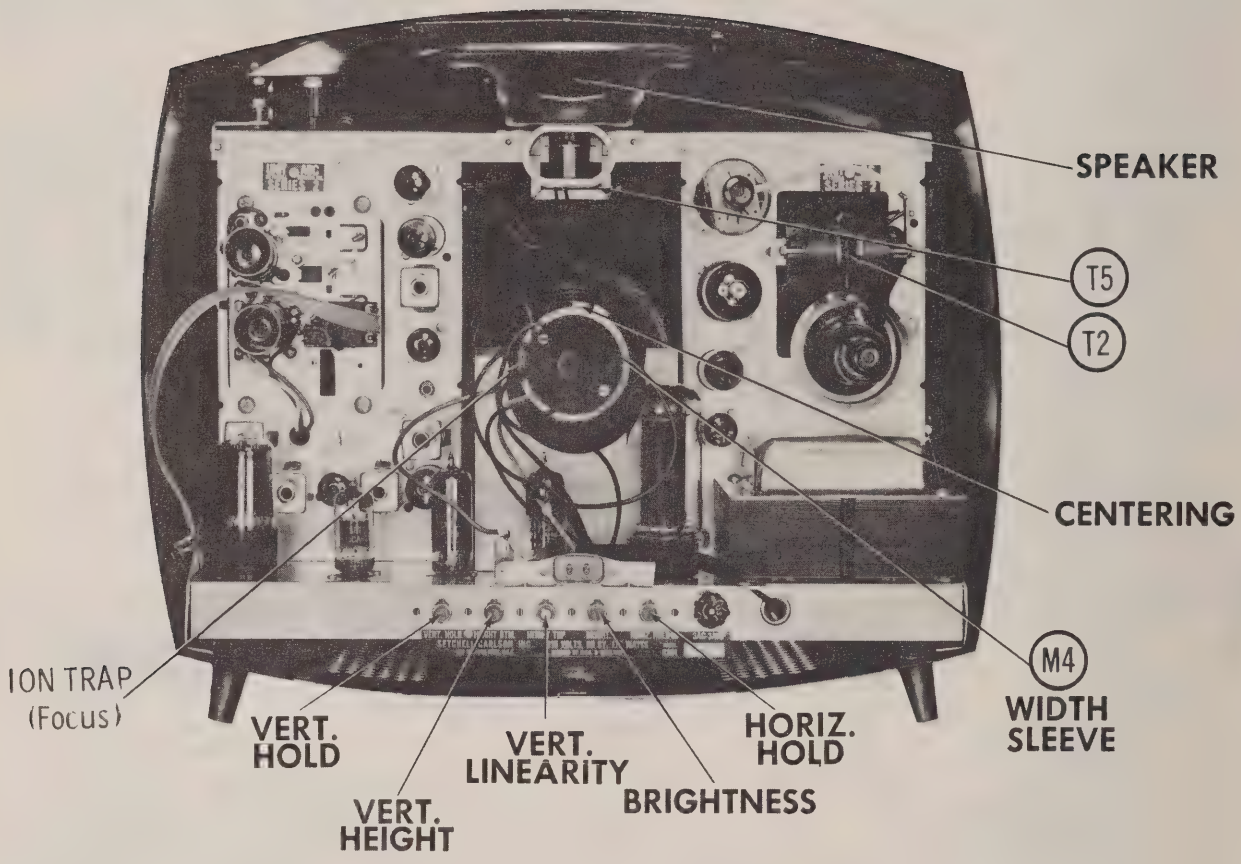


CHASSIS TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BN4	0Ω	220K	0Ω	.1Ω	†9200Ω	0Ω	220K		
V2	6CG8	10K	†15K	0Ω	0Ω	.1Ω	†13K	†40K	0Ω	224K
V3	6BA6	440K	0Ω	0Ω	.1Ω	▲ 470Ω	▲ 470Ω	82Ω		
V4	6AU6	60K	INF	0Ω	.1Ω	†2200Ω	†2200Ω	▲ 82Ω		
V5	6AM8	180Ω	.1Ω	†47K	.1Ω	0Ω	†500Ω	.1Ω	3900Ω	180Ω
V6	6AW8	0Ω	2.2Meg	†60K	.1Ω	0Ω	● 150Ω	1Meg	†35K	†4700Ω
V7	6AU8	5600Ω	33K	†5600Ω	0Ω	.1Ω	30K	35K	†100K	650K
V8	6AU6	2.7Ω	0Ω	0Ω	.1Ω	†1000Ω	†48K	180Ω		
V9	6T8	500K	22K	500K	0Ω	.1Ω	NC	0Ω	4.7Meg	†470K
V10	6AQ5	NC	270Ω	.1Ω	0Ω	†2400Ω	†2000Ω	1Meg		
V11	12AU7A	●†1.6Meg	● 1Meg	4700Ω	0Ω	0Ω	†220K	0Ω	4700Ω	.1Ω
V12	6V6GT	TP	0Ω	†600Ω	†260Ω	4.7Meg	TP	.1Ω	●700Ω	
V13	6AL5	27K	27K	0Ω	.1Ω	4.8Meg	0Ω	4.8Meg		
V14	12AU7A	†47K	5Meg	1200Ω	0Ω	0Ω	†100K	● 90K	1200Ω	.1Ω
V15	6DQ6A	TP	.1Ω	TP	†100K	2.2Meg	NC	0Ω	0Ω	TOP CAP *12Ω
V16	6AX4GT	TP	NC	250K	NC	†65Ω	TP	0Ω	.1Ω	
V17	1B3GT		PINS	1 THRU 8	HAVE	INF	RESISTANCE			TOP CAP *190Ω
V18	5U4GB	NC	40K	NC	33Ω	NC	40Ω	NC	40K	
V19	17AVP4	0Ω	22K	PIN 6 †65Ω	PIN 10 †65Ω	PIN 11 ●1Meg	PIN 12 .1Ω			

● THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
* MEASURED FROM PIN 3 OF V16.
† MEASURED FROM PIN 8 OF V18.
▲ MEASURED FROM PIN 2 OF V4
TP TIE POINT
NC NO CONNECTION.



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.
Adjust the horizontal hold control to synchronize the picture horizontally. If the control has to be turned to either extreme to sync the picture, or if slow warm-up causes the picture to drift, replace the horizontal oscillator tube (V14).

SILVERTONE MODELS 7200, 7202 (Ch. 132.40200)

SILVERTOWN MODELS 7200, 7202 (Ch. 132.40200)

SILVERTONE MODELS 7200, 7202 (Ch. 132.40200)

TRADE NAME	Silvertone Models 7200, 7202 (Ch. 132.40200)	
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.	
TYPE SET	AC Operated FM-AM Receiver	
TUBES (Eight)	Types 6CB6 FM RF Amplifier, 12AT7 FM Mixer-Osc., 6BE6 AM Converter, 6BA6 FM-AM IF Amplifier, 6BA6 2nd. FM IF Amplifier, 6T8 Ratio Det.-AM Det.-AVC-AF Amp., 6V6GT Output, 6X4 Rectifier	
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING .41 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST 540KC-1600KC		FREQ. MOD. 88MC-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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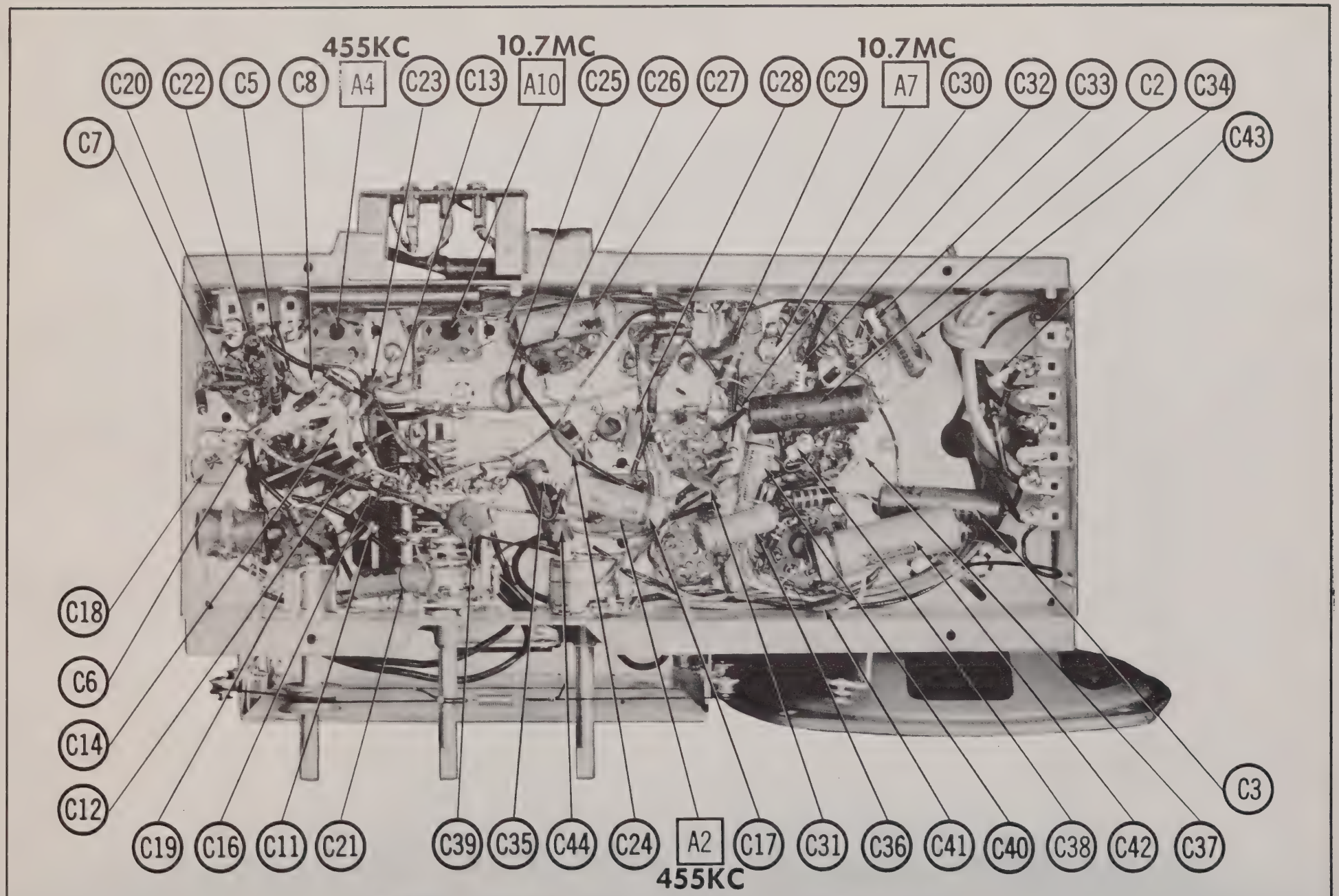
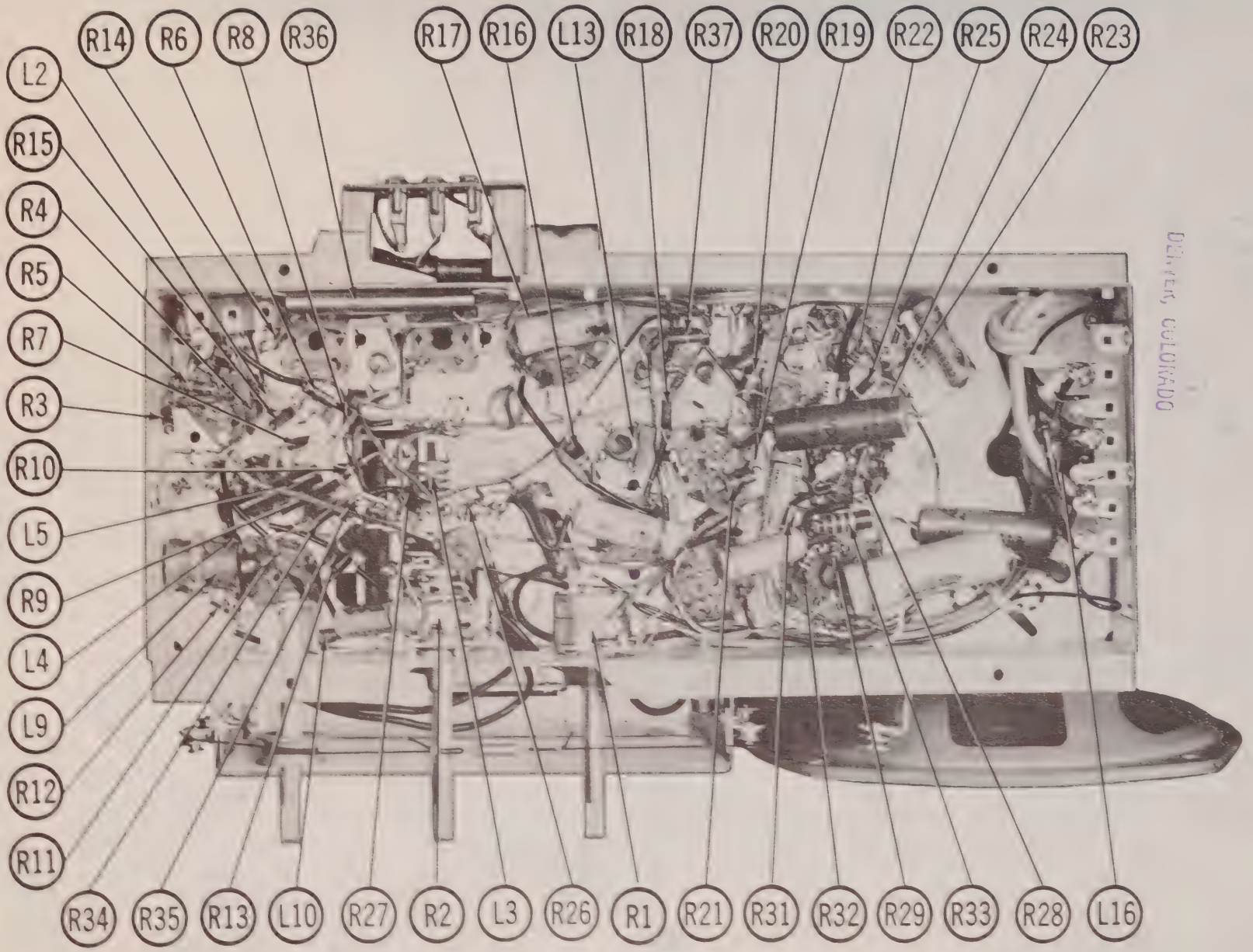


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

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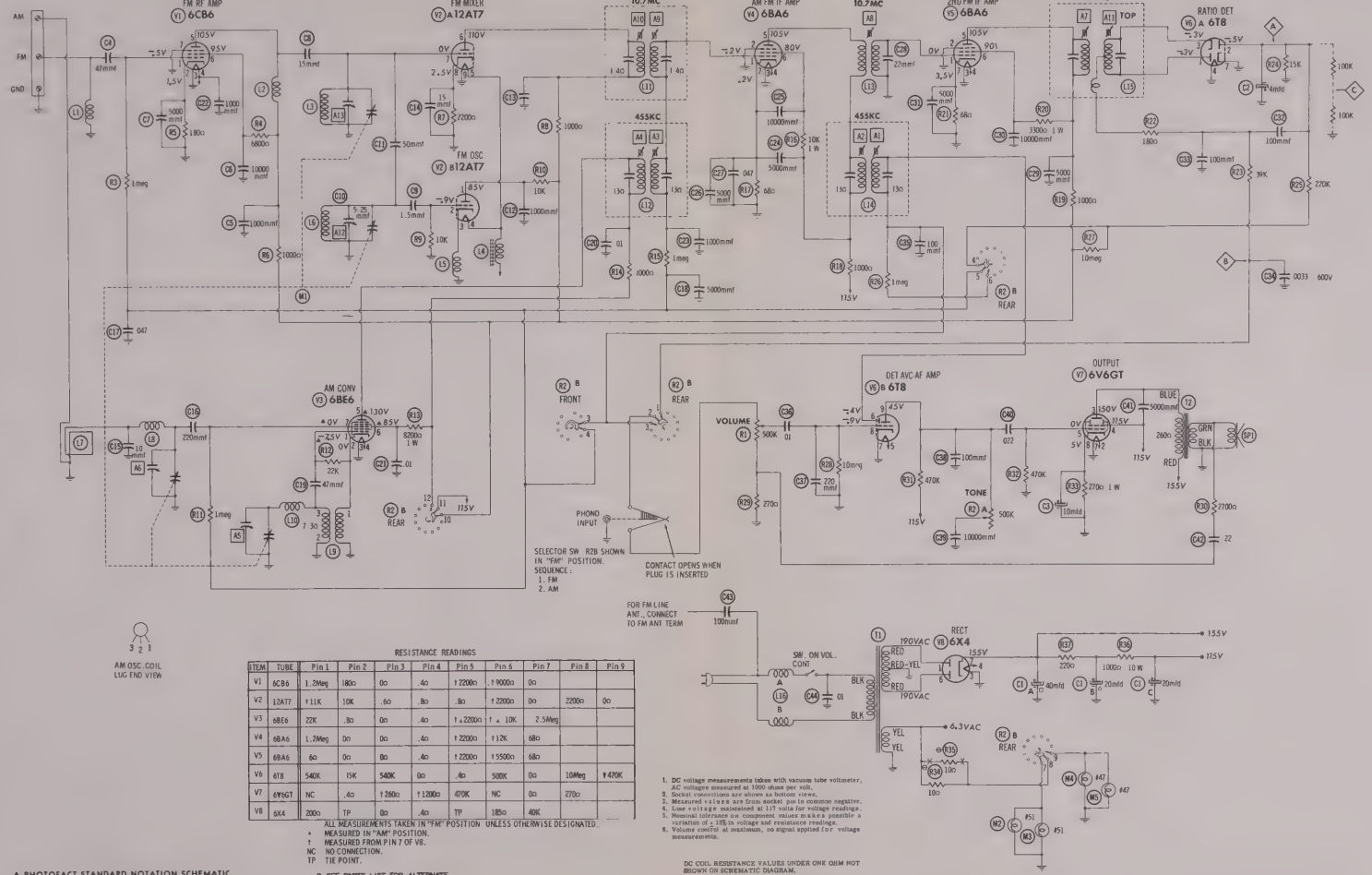

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	1.2Meg	180Ω	0Ω	.4Ω	†2200Ω	†9000Ω	0Ω		
V2	12AT7	†11K	10K	.6Ω	.8Ω	.8Ω	†2200Ω	0Ω	2200Ω	0Ω
V3	6BE6	22K	.8Ω	0Ω	.4Ω	†▲2200Ω	†▲10K	2.5Meg		
V4	6BA6	1.2Meg	0Ω	0Ω	.4Ω	†2200Ω	†12K	68Ω		
V5	6BA6	6Ω	0Ω	0Ω	.4Ω	†2200Ω	†5500Ω	68Ω		
V6	6T8	540K	15K	540K	0Ω	.4Ω	500K	0Ω	10Meg	†470K
V7	6V6GT	NC	.4Ω	†260Ω	†1200Ω	470K	NC	0Ω	270Ω	
V8	6X4	200Ω	TP	0Ω	.4Ω	TP	185Ω	40K		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
▲ MEASURED IN "AM" POSITION.
† MEASURED FROM PIN 7 OF V8.
NC NO CONNECTION.
TP TIE POINT.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes a possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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346-16

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (grid) of 6BE6 (V3). Low side to chassis.	455KC (400∿Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1650KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	Tune to 1400KC signal	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.005MFD	High side to pin 1 (grid) of 6BA6 (V4). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A7, A8	Adjust for maximum deflection.
5.	"	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A9, A10	"
6.	"	"	"	"	"	DC probe to point Ⓑ. Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.005MFD	High side to pin 1 (grid) of 6BA6 (V4). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A7, A8	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A9, A10	"
6.	"	"	"	"	"	"	A11	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω Carbon Resistor	High side thru 300Ω to FM antenna terminal. Low side to chassis.	108.5MC (Unmod)	FM	Tuning gang fully open	DC probe to point Ⓐ. Common to chassis.	A12	Adjust for maximum deflection.
8.	"	"	87.5MC	"	Tuning gang fully closed	"	L6	Adjust for maximum deflection by expanding or compressing coil turns.
9.	"	"	105MC	"	Tune to 105MC signal	"	A13	Adjust for maximum deflection.
10.	"	"	"	"	"	"	L3	Adjust for maximum deflection by expanding or compressing coil turns.

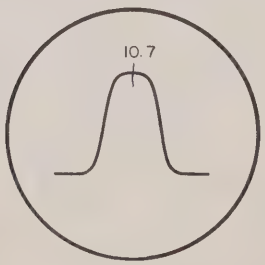


FIG. 1

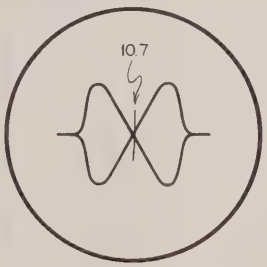


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6CB6	
V2	FM Mixer-Osc.	12AT7	
V3	AM Converter	6BE6	
V4	FM-AM IF Amplifier	6BA6	
V5	2nd. FM IF Amplifier	6BA6	

ITEM No.	USE	TYPE	NOTES
V6	Ratio Det. -AM Det. -AVC - AF Amplifier	6T8	
V7	Output	6V6GT	
V8	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

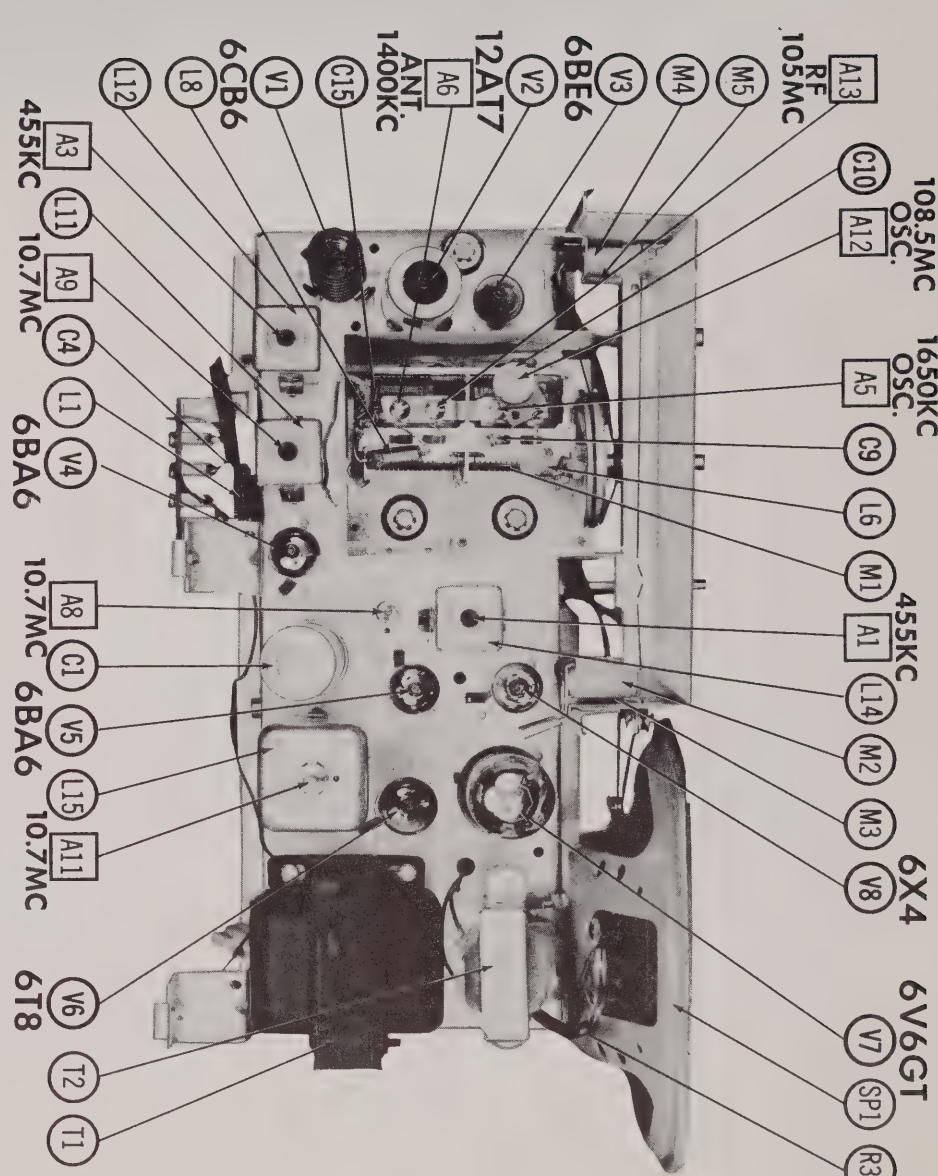
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	250	22806	AFH3-20	CO160	FP321	TMT-20	T-090	TVL-3540
B	▲20	250							
C	20	250							
C2	4	25	22659	PRS50V5	BBR4-50	TC30	TD-4-25	FM-1504	TVA-1203
C3	10	25	22602	PRS25V10	BBR10-25	TC22	TD-10-25	FM-0210	TVA-1204

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	47		20203-470	BPD-000047	DD-470	G033	ED-47	DC5447	5GA-Q47	
C5	1000		23078	BPD-001	DD-102	K069	ED-1000	DC521	5GA-D1	
C6	10000		22295	BPD-01	DD-103	K082	ED-10000	DC511	5HK-S1	
C7	5000		21674	BPD-005	DD-502	K080	ED-5000	DC525	5GA-D5	
C8	15		20203-150	BPD-000015	DD-150	G021	ED-15	DC5415	5GA-Q15	
C9	1.5		20238-3	NP0-SI 1.5	TCZ-1R5	Z004	TCO-1.5	ZT-5515	5TCCB-V15	
C10	5-25		22724		822-AZ		557-F			
C11	50		20205-5	BPD-00005	DD-500	G034	ED-50	DC545	5GA-Q5	
C12	1000		23078	BPD-001	DD-102	K069	ED-1000	DC521	5GA-D1	
C13	1000		23078	BPD-001	DD-102	K069	ED-1000	DC521	5GA-D1	
C14	15		20203-150	BPD-000015	DD-150	G021	ED-15	DC-545	5GA-Q5	
C15	10		20238-8	BPD-00001	DD-100	G018	ED-10	DC541	5GA-Q1	
C16	220		20203-221	BPD-00022	DD-221	G051	ED-220	DC5322	5GA-T22	
C17	.047	200	25455-473	BPD-05	DF-503	CUB4S47		GEM-4147	2TM-S47	
C18	5000		21674	BPD-005	DD-502	K080	ED-5000	DC525	5GA-D5	
C19	47		20203-470	BPD-000047	DD-470	G033	ED-47	DC5447	5GA-Q47	
C20	.01	400	25462-103	BPD-01	DD-103	CUB4S1		GEM-411	4TM-S1	
C21	.01	400	25462-103	BPD-01	DD-103	CUB4S1		GEM-411	4TM-S1	
C22	1000		23078	BPD-001	DD-102	K069	ED-1000	DC521	5GA-D1	
C23	1000		23078	BPD-001	DD-102	K069	ED-1000	DC521	5GA-D1	
C24	5000		21674	BPD-005	DD-502	K080	ED-5000	DC525	5GA-D5	
C25	10000		22295	BPD-01	DD-103	K082	ED-10000	DC511	5HK-S1	
C26	5000		21674	BPD-005	DD-502	K080	ED-5000	DC525	5GA-D5	
C27	.047	200	25455-473	BPD-05	DF-503	CUB4S47		GEM-4147	2TM-S47	
C28	22	500		1469 -000022		22R5Q22			MS-422	
C29	5000		21674	BPD-005	DD-502	K080	ED-5000	DC525	5GA-D5	
C30	10000		22295	BPD-01	DD-103	K082	ED-10000	DC511	5HK-S1	
C31	5000		21674	BPD-005	DD-502	K080	ED-5000	DC525	5GA-D5	
C32	100		20203-101	BPD-0001	DD-101	G042	ED-100	DC531	5GA-T1	
C33	100		20203-101	BPD-0001	DD-101	G042	ED-100	DC531	5GA-T1	
C34	.0033	600	25461-332	BPD-0033	DD-302	CUB6D33		GEM-6233	6TM-D33	
C35	100		20203-101	BPD-0001	DD-101	G042	ED-100	DC531	5GA-T1	
C36	.01	400	25462-103	BPD-01	DD-103	CUB4S1		GEM-411	4TM-S1	
C37	220		20203-221	BPD-00022	DD-221	G051	ED-220	DC5322	5GA-T22	
C38	100		20203-101	BPD-0001	DD-101	G042	ED-100	DC531	5GA-T1	
C39	10000		22295	BPD-01	DD-103	K082	ED-10000	DC511	5HK-S1	
C40	.022	400	25462-223	BPD-02	DD-203	CUB4S22		GEM-4122	4TM-S22	
C41	5000		21674	BPD-005	DD-502	K080	ED-5000	DC525	5GA-D5	
C42	.22	200	25455-224	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C43	100		20203-101	BPD-0001	DD-101	G042	ED-100	DC531	5GA-T1	
C44	.01	400	20249-103	BPD-01	DD-103	CUB4S1		GEM-411	4TM-S1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	44226	B-60-S	A47-500K-Z	Q13-133	U48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	Not Req.	SWE-12	76-1	US-26	Attach to R1A
R2A	500K	½	C44255					Tone
B	Switch		Not Req.					Band

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	IRC PART No.	
R3	1Meg		20061-105	BTS-1Meg	
R4	6800Ω		22381-682	BTS-6800	
R5	180Ω		22381-181	BTS-180	
R6	1000Ω		20061-102	BTS-1000	
R7	2200Ω		20061-222	BTS-2200	
R8	1000Ω		20061-102	BTS-1000	
R9	10K		20061-103	BTS-10K	
R10	10K		20061-103	BTS-10K	
R11	1Meg		20061-105	BTS-1Meg	
R12	22K		20061-223	BTS-22K	
R13	8200Ω	1	20070-822	BTA-8200	
R14	1000Ω		20061-102	BTS-1000	
R15	1Meg		20061-105	BTS-1Meg	
R16	10K	1	20070-103	BTA-10K	Note 1
R17	68Ω		20061-680	BTS-68	Note 1
R18	1000Ω		20061-102	BTS-1000	
R19	1000Ω		20061-102	BTS-1000	
R20	3300Ω	1	20070-332	BTA-3300	
R21	68Ω		20061-680	BTS-68	
R22	180Ω		22381-181	BTS-180	
R23	39K		22381-393	BTS-39K	
R24	15K		22381-153	BTS-15K	
R25	220K		20061-224	BTS-220K	
R26	1Meg		20061-105	BTS-1Meg	
R27	10Meg		20061-106	BTS-10Meg	
R28	10Meg		20061-106	BTS-10Meg	
R29	270Ω		22381-271	BTS-270	
R30	2700Ω		22381-272	BTS-2700	
R31	470K		20061-474	BTS-470K	
R32	470K		20061-474	BTS-470K	
R33	270Ω	1	20070-271	BTA-270	
R34	10Ω		20061-100	BTS-10	Note 1
R35	10Ω		20061-100	BTS-10	Note 1
R36	1000Ω	10	24774	PW10-1000	
R37	220Ω		20061-221	BTS-220	

Note 1. Some versions may use a single 4.7Ω in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @.41A	360VCT @.070A	6.3VAC @3.4A		22959					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4900Ω	3-4Ω	23669-3	Z1000	A-2930	A-3877	24S51	S-3X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6"	PM	3-4Ω	41437	6A1	229S1	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM Ant. Coil	22648-1	19-1002		4606	2.26 Microhenries
L2	RF Choke	21445-1				7.5 Microhenries
L3	FM RF Coil	22593-1				
L4	Fil. Choke	21673	19-1006		4624	14.4 Microhenries
L5	Cathode Choke	22597-1				3 Microhenries
L6	FM Osc. Coil	22594-1				
L7	Loop Antenna	44263-1				Includes cabinet back
L8	Ant. Loading Coil	24772-1	19-1005		4612	9 Microhenries
L9	AM Osc. Coil	22587-1				
L10	Parasitic Suppressor					1.33 Microhenries
L11	1st. FM IF	40690	16-3471		1463 *	
L12	1st. AM IF	24771	16-6758 *	BC-352 *	12-C1 *	
L13	2nd. FM IF	40614-1				
L14	2nd. AM IF	24771	16-6758 *	BC-353 *	12-C2 *	
L15	Ratio Det.	22592-1			1465 *	Tertiary winding -.3Ω
L16 A	Line Choke	24308-1				3.3 Microhenries
B	Line Choke					

* Use adaptor plate.

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Tuning Cap.	44254	2 Gang (22-530MMF, 19-135MMF)
M2	Lamp	23849	#47
M3	Lamp	23849	#47
M4	Lamp		#51 (Alternate type #47)
M5	Lamp		#51 (Alternate Type #47)
	Cabinet	44240-78	Brown
	Cabinet	44240-47	Ivory
	Knob	44216-48	Brown (3 used)
	Knob	44216-17	Ivory (3 used)
	Crystal	44211	Dial
	Pointer	44259	

TRUETONE
MODELS 2D1713A, 2D1714A

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TRUETONE MODEL 2D1713A

TRADE NAME	Truetone Models 2D1713A, 2D1714A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Fifteen
POWER SUPPLY	105-115 Volts AC-60 Cycles RATING 1.34 Amp. @ 115 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 26.75MC, Sound IF 22.25MC (Intercarrier)

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TRUETONE
MODELS 2D1713A, 2D1714A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type control knobs from front panel of cabinet.
2. Remove 13 metal screws. Remove rear cover.
3. Remove 4 wood screws holding front grill trim.
4. Remove grill trim and remove 2 chassis bolts now accessible.
5. Remove picture tube socket, speaker leads, yoke plugs and HV lead.
6. Remove 4 metal screws, 2 holding normal-fringe control, and 2 holding interlock-antenna bracket.
7. Remove 2 metal screws holding chassis to side of cabinet.
8. Remove chassis.
9. Remove 4 wood screws. Remove speaker.

MODEL
2D1713A

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the left of the channel selector shaft.

PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass remove 4 wood screws holding strip at the top edge of the safety glass. Remove strip and safety glass. Use extreme caution when removing safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement Chart on Page 5.

HORIZONTAL OSCILLATOR ADJUSTMENT

For adjustment of the horizontal oscillator it is necessary to remove the rear cover and supply power to the set. Adjustment is located on tube side of chassis. Set the horizontal hold control to the center of its range and adjust the horizontal oscillator slug (B1) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the buzz control (R8) located on top of the chassis for maximum volume and MINIMUM buzz.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

TRUETONE
MODELS 2D1713A, 2D1714A

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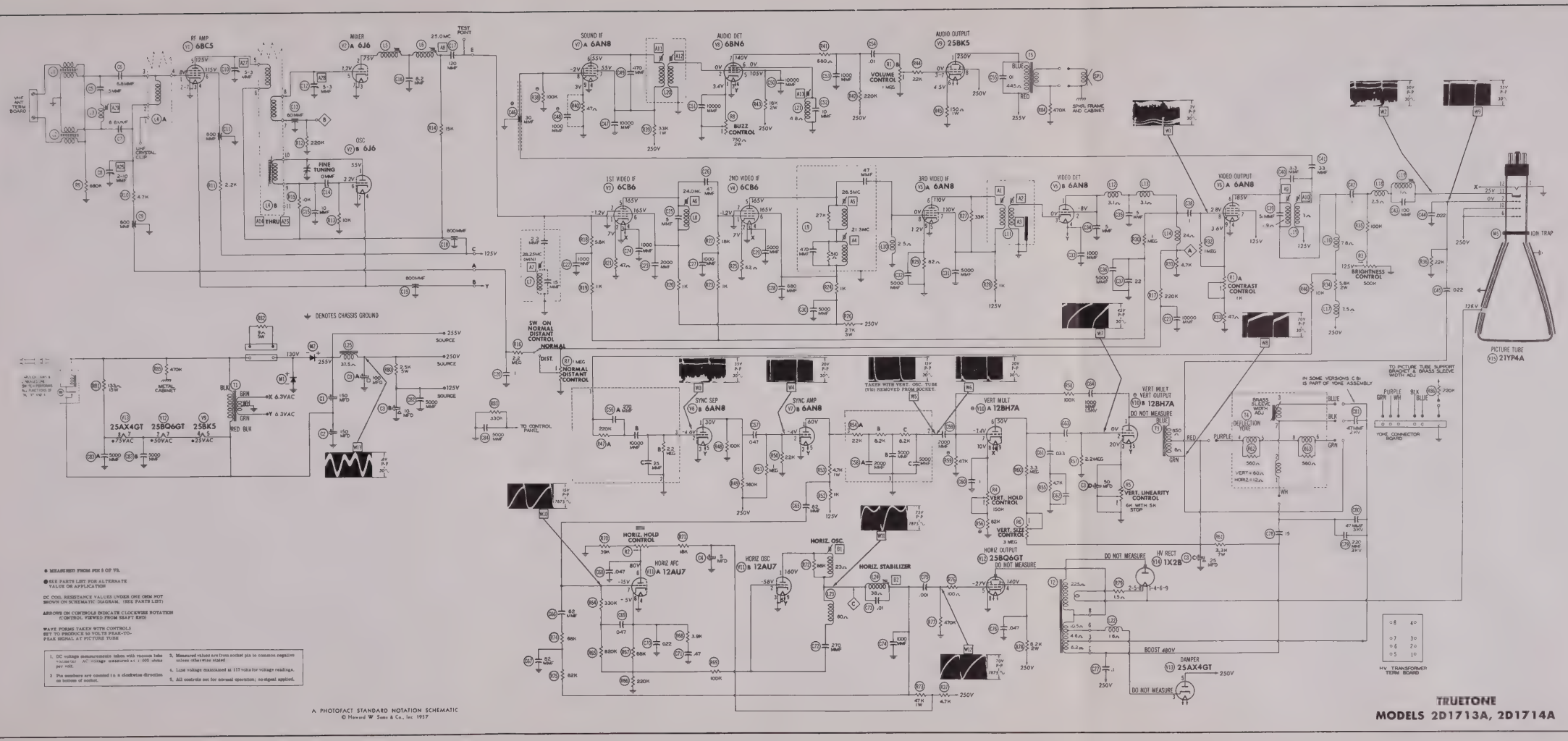

● MEASURED FROM PIN 5 OF V3.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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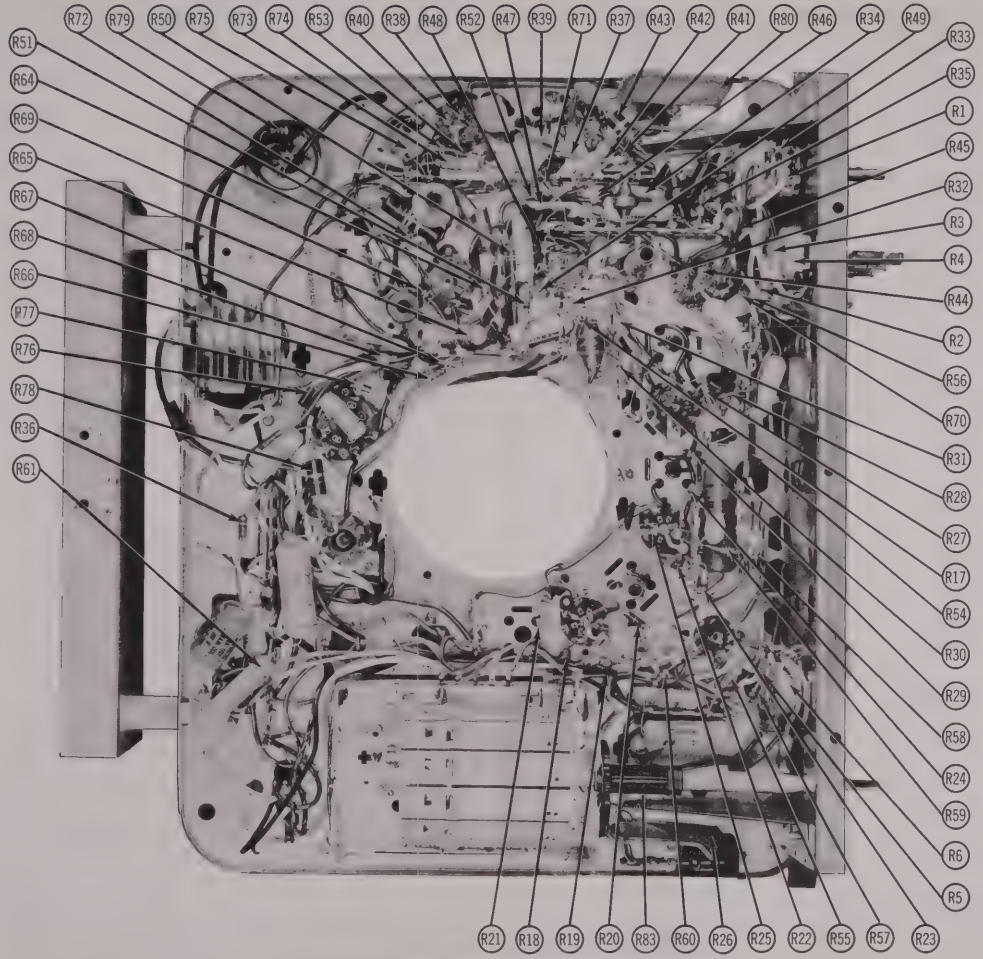
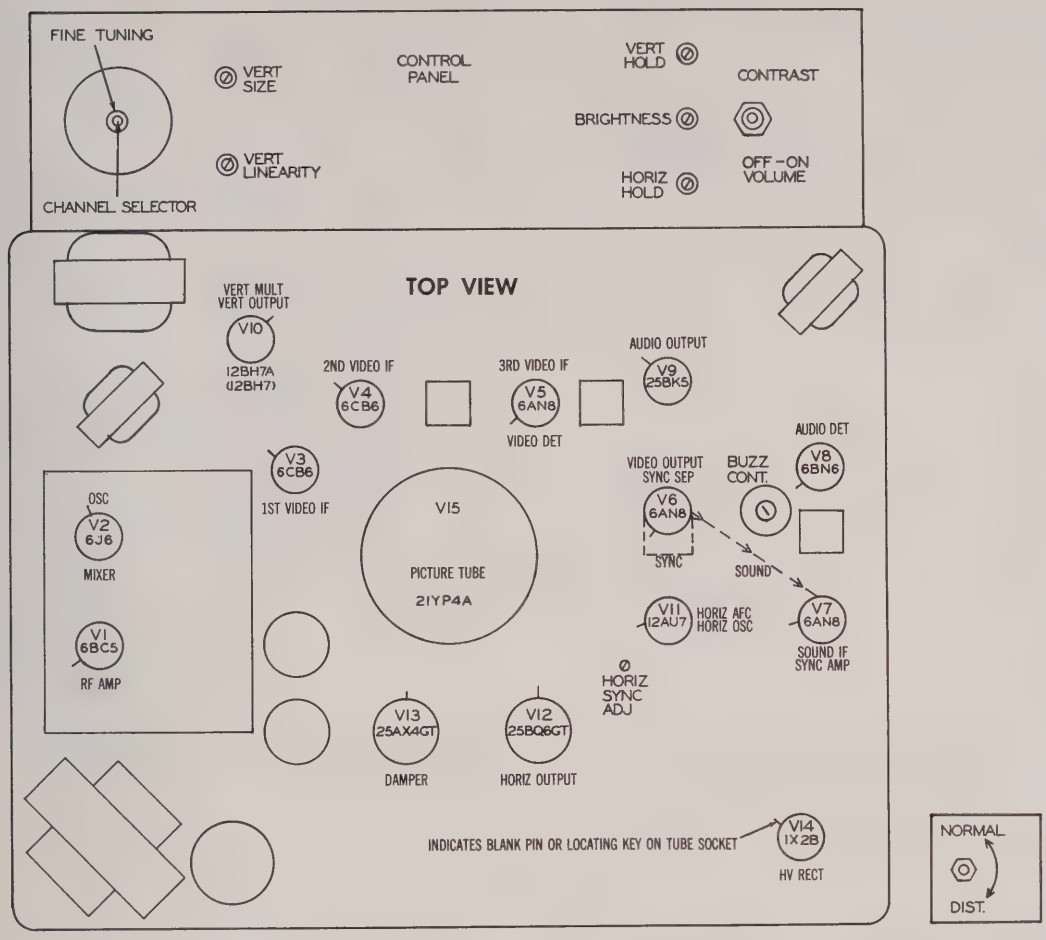
TRUETONE
MODELS 2D1713A, 2D1714A



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Selenium Rectifiers (M1 & M2)**

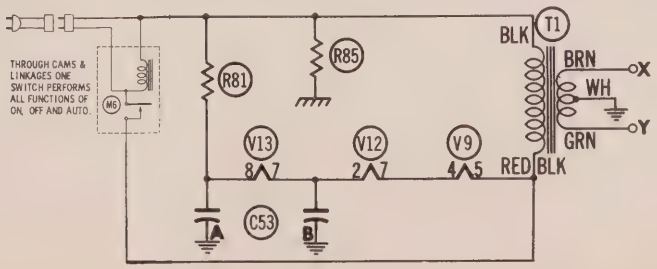
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V15**
Has pic, no sound - **V7, V8, V9**

PROPERTY OF

SYNC FAILURE
No vert. sync - **V7, V10**
No horiz. sync - **V7, V11**
No vert. or horiz. sync - **V6, V7**

SWEEP FAILURE
No raster, has sound - **V11, V12, V13, V14, V15**
No vertical deflection - **V10**
Poor vert. linearity or foldover - **V10**
Poor horiz. linearity or foldover - **V11, V12, V13**
Narrow picture - **V11, V12, V13, V14, M1, M2**
Vert. off freq. - **V7, V10**
Horiz. off freq. - **V7, V11**

Note: Since this receiver employs tubes used in a series-parallel filament network, an open filament in any tube in series may cause the set to be inoperative. (See Circuit below).



TRUETONE
MODELS 2D1713A, 2D1714A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped away from the chassis. Do not remove the horizontal oscillator tube (V11) to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to pin 8 (grid) of 6AN8 (V5). Low side to chassis.	25MC (10MC Swp.)	23.9MC 26.3MC	Any	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A1, A2, A3	Connect a short jumper from pin 5 (plate) to pin 6 (screen) of 6CB6 (V4). Adjust for response similar to Fig. 1 with markers at 90%. A3 is a coupling rod and affects band width. Remove short from pin 5 to pin 6 of V4.
2.	Direct	High side to an ungrounded tube shield floating over converter tube. Low side to chassis.	Not Used	21.3MC Unmod.	"	Use VTVM DC probe to point (A). Common to chassis.	A4	Adjust for maximum deflection.
3.	"	"	"	26.5MC	"	"	A5	Adjust for maximum deflection. Repeat Step 2.
4.	"	"	"	24MC	"	"	A6	Adjust for maximum deflection. Attenuate generator output to maintain not more than 2 volts at VTVM.
5.	"	"	"	28.25MC	"	"	A7	Adjust for MINIMUM deflection.
6.	"	"	"	25.0MC	"	"	A8	Adjust for maximum deflection. Attenuate generator to maintain not more than 2 volts at VTVM.
7.	"	"	25MC (10MC Swp.)	21.3MC 23.8MC 26.65MC	"	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.		Check for response similar to Fig. 2. Rock A8 for flat response. Increase sweep generator output and use high scope gain to view 22.25MC trap region. Adjust A4 so that 21.3MC appears at peak of pop-up portion preceeding trap notch. 22.25MC should fall in trap notch. If response is not similar to Fig. 2, repeat steps 1 thru 7.

SOUND IF ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket. Tune in a TV signal and adjust the fine tuning control until sound bars just appear in the picture. Adjust A9 fully counter clockwise, and then clockwise until the horizontal scanning lines are smooth and continuous. Readjust the fine tuning control for clearest picture and best sound. Insert an attenuator in series with the antenna and the receiver antenna terminals so that signal strength may be varied from weak to strong. If a suitable attenuator is not available stray feed the signal to the set by placing the antenna lead-in near the antenna terminals of the receiver.
Reduce the signal input to the receiver so that the signal falls below the limiting level of the 6BN6 limiter-detector as evidenced by a "hiss" in the sound. Adjust the secondary of the sound take-off transformer (A10), the sound if transformer (A11 and A12), the quadrature coil (A13) and the buzz control (R8) for maximum sound and minimum buzz. If hiss disappears during adjustments, increase attenuation until hiss reappears.

OSCILLATOR ALIGNMENT

The channel oscillator adjustment screws are reached through a hole just to the left of the fine tuning shaft. The correct oscillator adjustment screw is accessible through this hole as the channel switch is turned to each channel. Connect the negative lead of a 1.5 volt bias battery to the ungrounded side of C37. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50Ω.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp.)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A14	Adjust to place sound marker in trap notch as in Fig. 3. Use high scope gain and increase sweep generator output to view trap region. Video marker should fall at 50% on response curve.
			213MC (10MC Swp.)	211.25MC 215.75MC	13		A15	
			207MC (10MC Swp.)	205.25MC 209.75MC	12		A16	
			201MC (10MC Swp.)	199.25MC 203.75MC	11		A17	
			189MC (10MC Swp.)	187.25MC 191.75MC	9		A18	
			183MC (10MC Swp.)	181.25MC 185.75MC	8		A19	
			177MC (10MC Swp.)	175.25MC 179.75MC	7		A20	
			85MC (10MC Swp.)	83.25MC 87.75MC	6		A21	
			79MC (10MC Swp.)	77.25MC 81.75MC	5		A22	
			69MC (10MC Swp.)	67.25MC 71.75MC	4		A23	
			63MC (10MC Swp.)	61.25MC 65.75MC	3		A24	
			57MC (10MC Swp.)	55.25MC 59.75MC	2		A25	

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT

Leave bias battery connected as under "Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50Ω.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp.)	193. 25MC 197. 75MC	10	Vert. Amp. thru 10KΩ to point (B). Low side to chassis.	A26, A27, A28	Adjust for response curve similar to Fig. 4 with markers above 90%.
10.	"	"	69MC (10MC Swp.)	67. 25MC 71. 75MC	4	"		Check for response curve similar to Fig. 4. If markers fall below 70% on any channel, make slight compromise adjustments of A26, A27, and A28 with channel switch set at that channel. Recheck all other channels to make sure they have not been seriously affected.
			213MC (10MC Swp.)	211. 25MC 215. 75MC	13			
			207MC (10MC Swp.)	205. 25MC 209. 75MC	12			
			201MC (10MC Swp.)	199. 25MC 203. 75MC	11			
			189MC (10MC Swp.)	193. 25MC 197. 75MC	9			
			183MC (10MC Swp.)	181. 25MC 185. 75MC	8			
			177MC (10MC Swp.)	175. 25MC 181. 75MC	7			
			85MC (10MC Swp.)	83. 25MC 87. 75MC	6			
			79MC (10MC Swp.)	77. 25MC 81. 75MC	5			
			63MC (10MC Swp.)	61. 25MC 65. 75MC	3			
			57MC (10MC Swp.)	55. 25MC 59. 75MC	2			
11.	"	"	Not Used	105MC	2	Use VTVM DC probe to point (A). Common to chassis.	A29	Adjust for MINIMUM deflection.

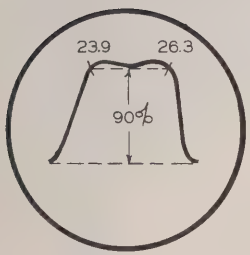


FIG. 1

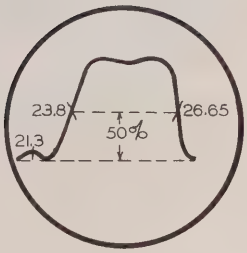


FIG. 2

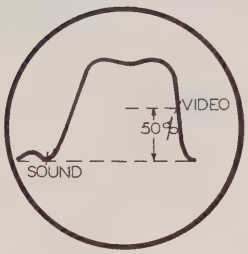


FIG. 3

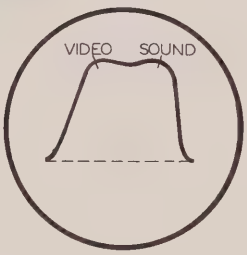
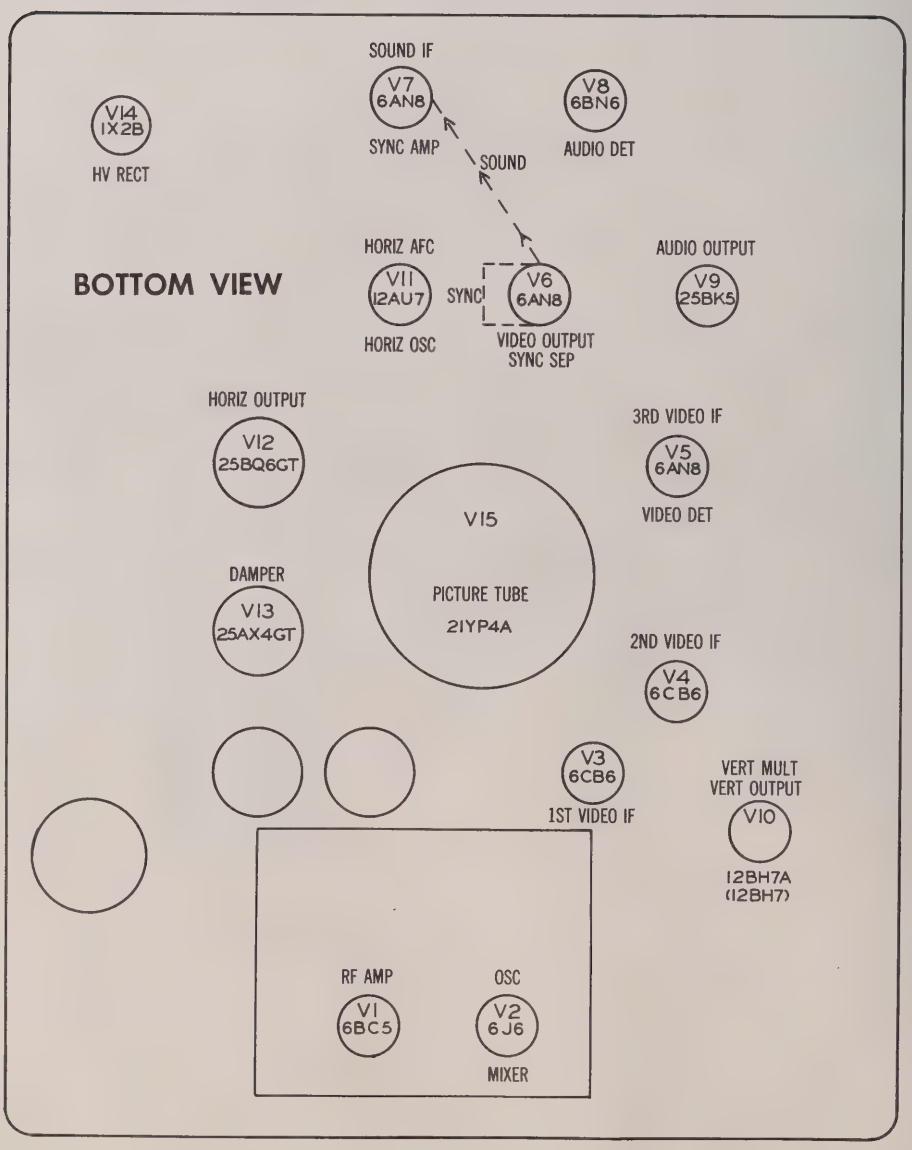


FIG. 4

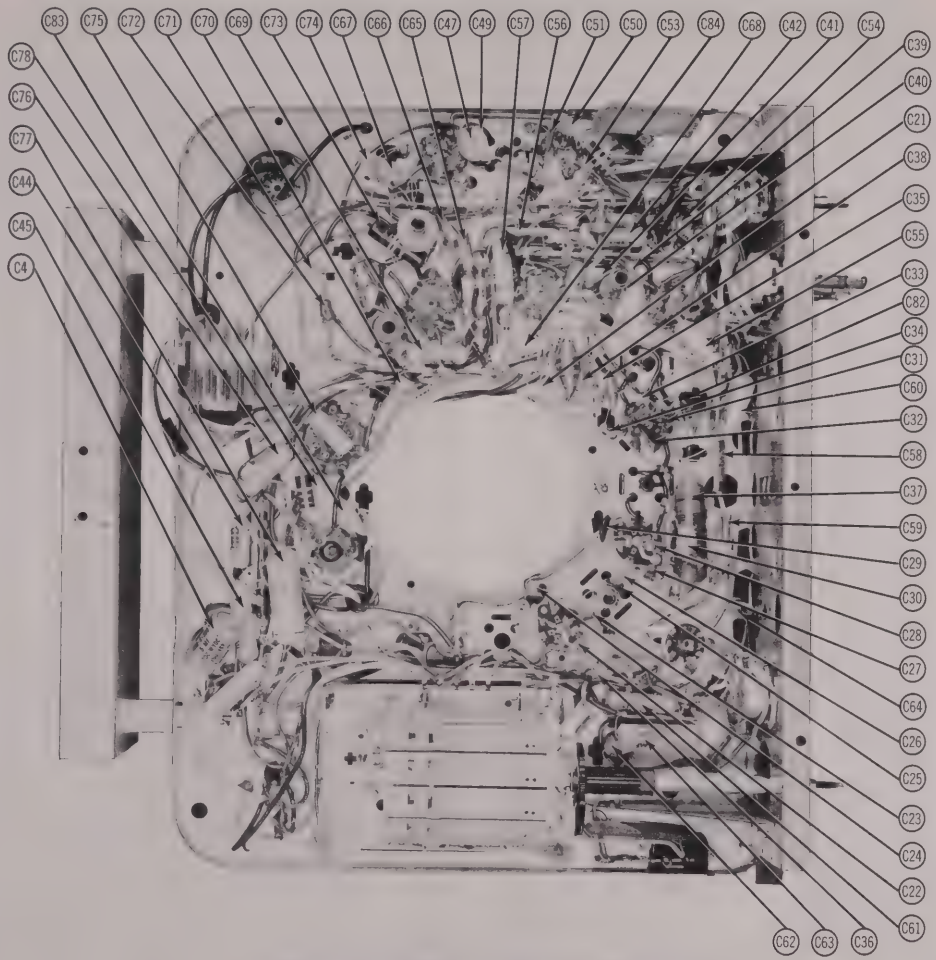
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	2. 5Meg	0Ω	0Ω	. 1Ω	† 2. 5KΩ	† 4. 7KΩ	0Ω		
V 2	6J6	† 13KΩ	† 18KΩ	0Ω	. 1Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	47Ω	0Ω	. 1Ω	† 3. 7KΩ	† 3. 7KΩ	0Ω		
V 4	6CB6	1Meg	62Ω	0Ω	. 1Ω	† 3. 7KΩ	† 3. 7KΩ	0Ω		
V 5	6AN8	4. 7KΩ	4. 7KΩ	. 2Ω	. 1Ω	0Ω	† 3. 5KΩ	† 3. 5KΩ	2. 5Ω	82Ω
V 6	6AN8	† 120KΩ	2. 2Meg	0Ω	0Ω	. 1Ω	† 5. 6KΩ	† 2. 5KΩ	1Meg	170Ω
V 7	6AN8	† 8. 2KΩ	22KΩ	0Ω	0Ω	. 1Ω	† 33KΩ	† 33KΩ	100KΩ	47Ω
V 8	6BN6	400Ω	. 3Ω	0Ω	. 1Ω	† 18KΩ	4. 8Ω	† 220KΩ		
V 9	25BK5	†445Ω	TP	130KΩ	♦ 10Ω	♦ 0Ω	150Ω	130KΩ	† 38Ω	TP
V 10	12BH7A	▲ 4KΩ	2. 2Meg	1. 3KΩ	. 1Ω	. 1Ω	▲ 4. 5Meg	47KΩ	80KΩ	1. 6Ω
V 11	12AU7	† 50KΩ	300KΩ	0Ω	0Ω	0Ω	† 22KΩ	1. 5Meg	300KΩ	. 1Ω
V 12	25BQ6GT	TP	♦ 20Ω	TP	† 8. 2KΩ	470KΩ	TP	♦10Ω	0Ω	TOP CAP ▲ 12Ω
V 13	25AX4GT	TP	NC	250KΩ	NC	† 38Ω	TP	♦ 20Ω	♦ 25Ω	
V 14	1X2B		PINS	1 - 9	HAVE	INF	RESISTANCE			TOP CAP ▲ 237Ω
V 15	21YP4A	0Ω	22KΩ	PIN 6 † 38Ω	PIN 10 † 38Ω	PIN 11 † 170KΩ	PIN 12 . 1Ω			

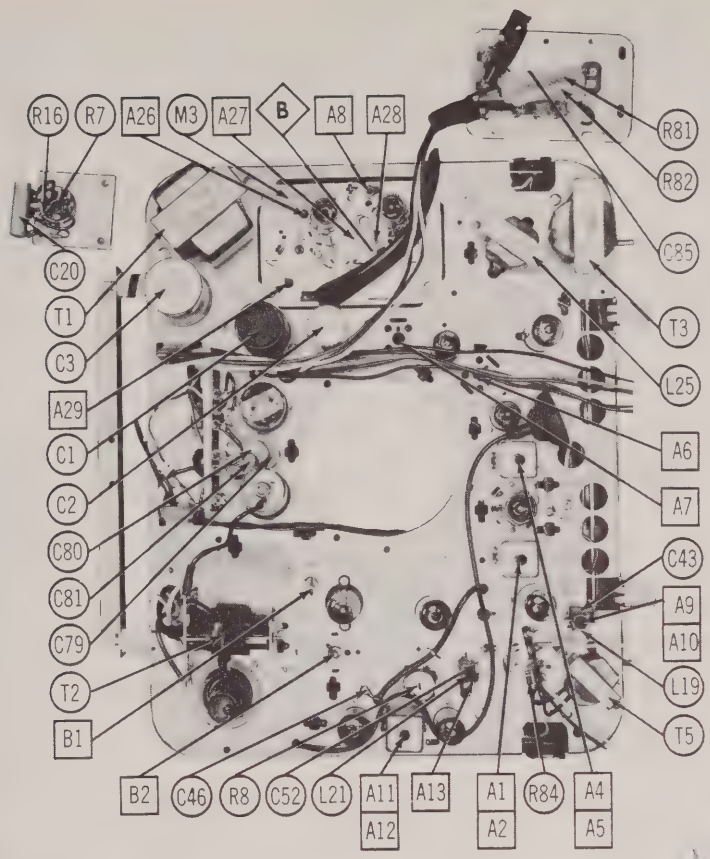
♦ MEASURED FROM PIN 5 OF V9.
† MEASURED FROM OUTPUT OF M2.
▲ MEASURED FROM PIN 3 OF V13.
TP-TIE POINT.
NC-NO CONNECTION.



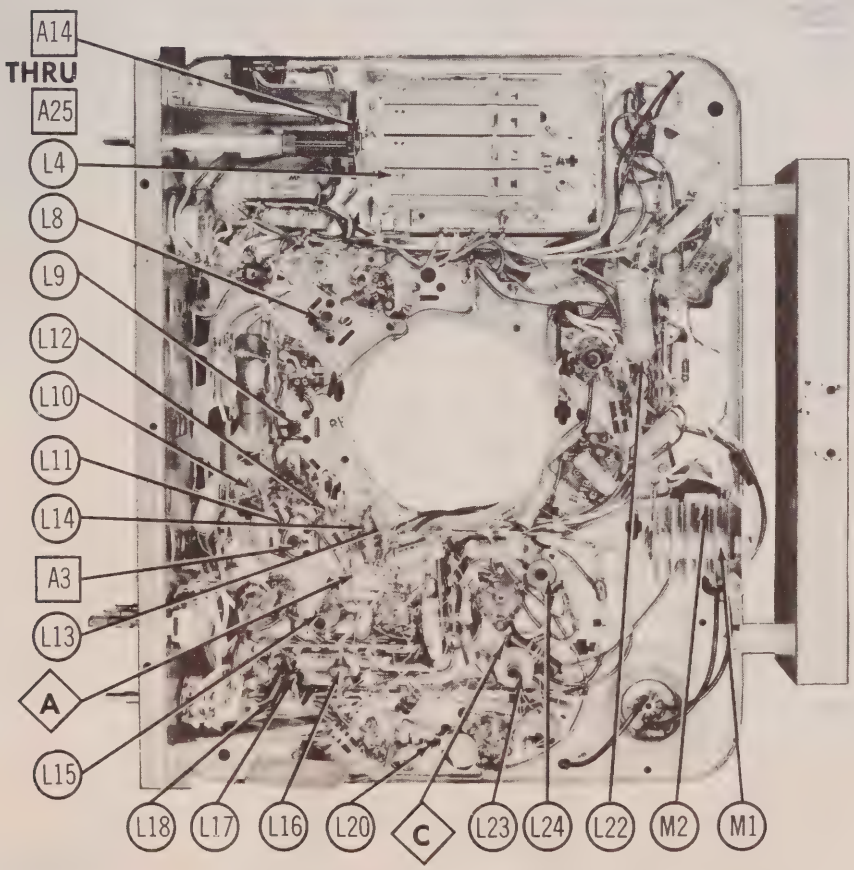
TUBE PLACEMENT CHART



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BC5	
V2	Mixer Oscillator	6J6	
V3	1st Video IF Amplifier	6CB6	
V4	2nd Video IF Amplifier	6CB6	
V5	3rd Video IF Amplifier - Video Detector	6AN5	
V6	Video Output - Sync Separator	6AN8	
V7	Sound IF Amplifier - Sync Amplifier	6AN8	
V8	Audio Detector	6BN6	
V9	Audio Output	25B5	
V10	Vert. Mult. -Vert. Output	12BH7A	Note 1
V11	Horiz. AFC-Horiz. Osc.	12AU7	
V12	Horiz. Output	25BQ6GT	
V13	Damper	25AX4GT	
V14	HV Rectifier	1X2B	

Note 1 12BH7 may be used as an alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	TRUETONE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V15	21YP4A 1	21YP4A 1	21YP4A 1	21YP4A 2	1 Aluminized 2 Silver screen "25"
			21YP4	21YP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP	VOLT	TRUETONE PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	150	8C-23463	AFH51-23	XA0381	FPU7	TM5-25	T-050	TVL-1428
C2	150	150	8C-23464	AFH51-23	XA0381	FPU7	TM5-25	T-050	TVL-1428
C3 A	40-60	300	8C-25309	AFH4-405-60		FP39B 1	TMQ-155	T-537	R1854
B	40	300				TC39		M7-4530	
C	35	450							
D	50	300							
C4	5	300	8C-34174		BR435	TC80	TD-5-350	FM-3508	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	1.5		13LSC15D-C	MPO-61 1.5	TCZ-1R5	C10Y5C	TCOO-1.5	ZT-5515	5TCCB-V15	
C6	6.8		13LSC68JB	MPO-DB8	TCZ-6R8	C10Y5C	TCOO-6.8	ZT-5568	5TCCB-V68	
C7	6.8		13LSC68JB	MPO-DB8.8	TCZ-6R8	C10Y5C	TCOO-6.8	ZT-5568	5TCCB-V68	
C8	3-10		32B-902		828-10					
C9	800		13M-330EA-1025C							
C10	5-3		32B-902		828-3		31S-D	CT565A		
C11	800		13M-330EA-1025C							
C13	5-3		32B-902		828-3		31S-D	CT565A		
C14	60		13M-330Q-600J							
C15	10		13LBQ10A							
C16	10		13LBQ10A							
C18	6.8		13LSC68JB	MPO-DB8.8		C10Y5C	TCOO-6.8			
C17	150		13LY15D	BP0-D0013	DD-12	L10T12	KD-150	UC-5312	5GA-T12	
C18	800		13M-330EA-1025C							
C19	800		13M-330EA-1025C							
C20	.1	300		P388M-1	DF-104	CUB3P1		GEM-601	5TM-P1	
C21	10000			BP0-01	DD-103	BYA6SI	KD-10K	DC5SI	5SK-S1	
C22	1000			BP0-001	DD-102	BYA6SK	KD-1000	DC52I	5SK-D2	
C23	3000			SI 3000	DD-302	BYA6D3	KD-003	DC53I	5SK-D3	
C24	1000			BP0-001	DD-103	BYA6DK	KD-1000	DC52I	5SK-D2	
C25	50			MPO-DB5	TC-5R7	L10Y5	KD-5	ZT-5505	5TCCB-V47	
C26	47			BP0-000047	DB-470	L10Q47	ED-47	UC-5647	5GA-Q47	
C27	1000			SI 1000	DE-102	BYA6DK	ED-1000	UC-532	5SK-D1	
C28	680			SI 680	DE-68I	BYA10T68	ED-680	UC-5368	5GA-T68	
C29	5000			BP0-005	DD-503	BYA10DE	KD-005	DC53I	5SK-D6	
C30	5000			BP0-005	DD-503	BYA10DE	KD-005	DC53I	5SK-D6	
C31	5000			BP0-005	DD-502	BYA10DE	KD-005	DC52I	5SK-D6	
C32	5000			BP0-005	DD-503	BYA10DE	KD-005	DC53I	5SK-D6	
C33	1000			BP0-001	DD-103	BYA6DK	ED-1000	DC52I	5SK-D1	
C34	5			MPO-SI 5	TCZ-4R7	C10Y5C	TCO-5	ZT-555	5TCCB-V47	
C35	5			MPO-SI 5	TCZ-4R7	C10Y5C	TCO-5	ZT-555	5TCCB-V47	
C36	5000			BP0-005	DD-503	BYA10DE	KD-005	DC53I	5SK-D6	
C37	33	200		P388M-33		CUB3P33		GEM-6033	5TM-P33	
C38	.1	300		P388M-1	DF-104	CUB3P1		GEM-601	5TM-P1	
C39	1			MPO-SI 2.2	TCZ-2R2	C10Y5C	TCO-2.2	ZT-5522	5TCCB-V22	
C40	2.2			MPO-SI 33	TCZ-33	C56Q3C	TCO-33	ZT-5433	5TCC-Q33	
C42	.1	600		P488M-1	DF-104	CUB4P1		GEM-601	4TM-P1	
C43	100	500		MPO-SI 100	DS-101	SR5T1	ED-100	MCB235	5SI-S1	
C44	033	600		BP0-033	DD-303	CUB4S3	KD-033	GEM-4133	5TM-S33	
C45	022	600		BP0-03	DD-303	CUB4S3	ED-03	GEM-6133	5TM-S33	
C46	50		14B-27773							Note 1
C47	10000			BP0-01	DD-103	BYA6SI	ED-01	DC5II	5SK-S1	
C48	10000			BP0-001	DD-103	BYA6DK	KD-1000	DC52I	5SK-D1	Note 3
C49	470	500		1464-00047	DS-471	SR5T47	SU-471	MCB245	5SI-447	
C50	10000			BP0-01	DD-103	BYA6DK	ED-01	DC5II	5SK-S1	
C51	10000			BP0-01	DD-103	BYA6DK	ED-01	DC5II	5SK-S1	
C52	10			MPO-SI 10	TCZ-10	C5QG1C	TCO-10	ZT-541	5TCC-Q1	
C53	500			BP0-001	DD-053	BYA6SK	KD-1000	DC53I	5SK-S1	
C54	.01	600		BP0-01	DD-103	CUB4S1	ED-01	GEM-601	4TM-S1	
C55	.01	600		BP0-01	DD-103	CUB4S1	ED-01	GEM-601	4TM-S1	
C56A	270			SI 270	DE-103	L10T27	ED-270	UC-5327	5GA-T27	
B	10000		14A-24212	BP0-01	12PC-253	BYA6SI	ED-01	DC5II	5SK-S1	
C	25			SI 25		L10Q25	ED-25	UC-5425	5GA-Q25	
C57	.047	300		BP0-06	DF-503	CUB3S47		GEM-6147	5TM-S47	
C58	3000							DC523		
B	5000		14A-23376	4PA-10	4PC-100	41S5TM2	41405-01	DC525	4V-1	
C	5000							DC525		
C59	3000			SI 3000	DE-302	BYA6D3	ED-003	UC-532	5GA-D2	
C60	.1	200		P288M-1	DF-104	CUB2P1		GEM-601	3TM-P1	
C61	.033	600		BP0-03	DD-303	CUB3S3		GEM-6133	5TM-S33	
C62	.1	200		P288M-1	DF-104	CUB2P1		GEM-601	2TM-P1	
C63	.1	600		P488M-1	DF-104	CUB4P1		GEM-601	4TM-P1	
C64	1000	1500		HVD-15-1000	DD30-102	HVH15D	1R5KV-102		DC302	30GA-D1
C65	02	500		1469-00002	TCZ-020	12R5QR3	MP0-337-020			M3-462
C66	02	500		1469-00002	TCZ-020	12R5QR3	MP0-337-020			M3-462
C67	02	500		1469-00002	TCZ-020	12R5QR3	MP0-337-020			M3-462
C68	.047	400		BP0-06	DF-503	CUB3S47		GEM-6147	5TM-S47	
C69	.047	300		BP0-06	DF-503	CUB3S47		GEM-6147	5TM-S47	
C70	.033	300		BP0-03	DD-303	CUB4S33	M7-02	GEM-6133	5TM-S33	

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C71	47	300		P388N-47		CUB2P47		GEM-4047	2TM-P47	
C72	470			MPO-SI270	TCZ-470	SR5T27	M9O-335-270		M3-327	
C73	01	500								
C74	1000	500		1464-001		BYA6DK	811-102	MCB255	M5-2	
C75	.001	600		BP0-001		D6-102	CUB6M	ED-001	GEM-532	6TM-D1
C76	.047	600		BP0-06		DF-503	CUB4S47		GEM-6147	4TM-S47
C77	.1	600		P488M-1		DF-104	CUB4P1		GEM-601	6TM-P1
C78	.15	300		P388M-15			CUB2P15		GEM-6015	2TM-P15
C79	330	3000	5G-23953	BYD-33-223		DD30-22I	HVD3N7272	3KV-22I	DC30322	30GA-T22
C80	47	3000	5G-24036	HVD-30-47		DD30-470	HVA30Q47	3KV-470	DC30447	30GA-Q47
C81	47	3000	5G-23645	HVD-30-47		DD30-470	HVA30Q47	3KV-470	DC30447	30GA-Q47
C82	5000			BP0-005		DD-502	BYA10DE	ED-005	DC525	5SK-D6
C83A	5000			BP0-005		DD-502	BYC8D05	ED-006	DC525	5SK-D6
B	5000							ED-005	DC525	5SK-D6
C84	5000			BP0-005		DD-502	BYA10DE	ED-005	DC525	5SK-D6

Note 1: C45 is the capacitance of the sound IF coupling shield lead
Note 2. Not used in some versions.
† Items C56A, C56B, C56C, R47A and R47B are combined in one unit.
▾ Items C56A, C56B, C56C, R54A, R54B and R54C are combined in one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1A	1000Ω	½	10A-33714	V1-4	R7Y-686	Q2-736 ▾	UP13L		Contrast (Panel)
B	1Meg			R2-53			UB16A	*	Volume (Rear)
C	Switch			KB-1			UB-38		Attach to R1B
R2A	50K	½	10B-25397	AB-5I	A47-50K-6	Q1-123	TA54L		Horiz. Hold
B	Shaft		Not Req.	AK-4	Not Req.	Not Req.	Not Req.		Attach to R3A
R3A	500K	½	10B-25399	AB-59	A47-500K-8	Q1-133	TA55L		Brightness
B	Shaft		Not Req.	AK-4	Not Req.	Not Req.	Not Req.		Attach to R3A
R4A	150K	½	10B-25396	AB-43	A47-150K-8	Q1-139	TA194L		Vert. Hold
B	Shaft		Not Req.	AK-4	Not Req.	Not Req.	Not Req.		Attach to R4A
R5A	6000Ω	½	10H-23407	AB-10 ▾	A47-5000-S ▾	Q1-114 †	TA51L †		Vert. Linearity
	Stop 5000Ω								
B	Shaft		Not Req.	AK-1	FK3-1	R2Q	Not Req.		Attach to R5A
R6A	1Meg	½	10B-23696	AB-64	A47-1Meg-S	Q1-140	TA36L		Vert Size
B	Shaft		Not Req.	AK-1	FK3-1	R2Q	Not Req.		Attach to R5A
R7A	1Meg	½	10A-25067	AB-69	A47-1Meg-S		U-54		Normal-distant
B	Shaft		Not Req.	AK-3	F3-3		Not Req.		Attach to R7A
C	Switch		Not Req.	KB-3	SWE-II		UB-38		Attach to R7A
R8	5000		10D-23867		30-150				Burst (Wire wound)

▾ Concentrikit Equivalent: K-6H, Base Elements & Shafts: H17-105, P17-102 (Panel)
H13-137, R3-1B (Rear)
7B-1 (Switch)

* Universal Replacement (Mallory exact duplicate part #UB16Q).
† Connect a 1000Ω resistor in series with the right hand terminal of the control, and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R9	680K			BTS-680K	
R10	4700Ω			BTS-4700	
R11	1200Ω			BTS-1200	
R13	220K			BTS-220K	
R14	10K			BTS-10K	
R15	10K			BTS-10K	
R16	2.2Meg			BTS-2.2Meg	
R17	220K			BTS-220K	
R18	5600Ω			BTS-1000	
R19	1000Ω			BTS-1000	
R20	1000Ω			BTS-1000	
R21	47Ω			BTS-47	
R22	18K				
R23	1000Ω			BTS-1000	
R24	1000Ω			BTS-1000	
R25	82Ω 5%		9R-130	BTS-82 5%	
R26	270Ω	3	8C11-1104		
R27	33K			BTS-33K	
R28	1000Ω			BTS-1000	
R29	82Ω			BTS-82	
R30	1Meg			BTS-1Meg	
R31	470Ω			BTS-4700	
R32	1Meg			BTS-1Meg	
R33	47Ω			BTS-47	
R34	5600Ω	3		BTS-5600	
R35	100K			BTS-100K	
R36	33K			BTS-33K	
R37	4700Ω			BTS-4700	
R38	100K			BTS-100K	Note 1
R39	33K	1		BTS-33K	
R40	47Ω			BTS-47	
R41	560Ω			BTS-560	
R42	220K			BTS-220K	
R43	18K	2		BTS-18K	
R44	33K	1		BTS-33K	
R45	10K			BTS-10K	
R46	10K			BTS-10K	
R47A	22K		†17A-24212	BTS-220K	
B	2.2Meg			BTS-2.2Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R48	100K			BTS-100K	
R49	560K			BTS-560K	
R50	33K			BTS-33K	
R51	1Meg			BTS-1Meg	
R52	1000Ω			BTS-1000	
R53	4700Ω	1		BTA-4700	
R54A	33K			BTS-33K	
B	8200Ω		†17A-23376	BTS-8200	
C	8200Ω			BTS-8200	
R55	4700Ω			BTS-4700	
R56	33K			BTS-33K	Note 3
R57	2.2Meg			BTS-2.2Meg	
R58	100K			BTS-100K	
R59	47K			BTS-47K	Note 3
R60	3.3Meg			BTS-3.3Meg	
R61	330Ω 5%	7	9C12-1105	PWV-3300	
R62	560Ω				
R63	560Ω				
R64	330K				
R65	680K				
R66	330Ω				
R67	68K				
R68	330Ω				
R69	100K				
R70	39K				
R71	18K				
R72	68K				
R73	47K				
R74	68K				
R75	33K				
R76	100Ω				
R77	470K				
R78	8200Ω	5			
R79	1.5Ω	5	9C1-1085	BWĻ-1.5	
R80	2500Ω	5	9C-24033	PWV-2500	
R81	12Ω	10	9C-23873		
R82	9Ω	5	49M-23918		
R83	330K			BTS-330K	
R84	470K			BTS-470K	
R85	470K			BTS-470K	
R86	220K			BTS-220K	

Note 1. Some versions use a 470K in this application.
Note 2. Some versions use a 68K in this application.
Note 3. Some versions use a 100K in this application.
† Items R47A, R47B, C56A, C56B, C56C are combined in one unit.
▾ Items R54A, R54B, R54C, C58A, C58B, C58C are combined in one unit.

TRANSFORMER (FILAMENT)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	117VAC 30A	12VCT 2.1A			13D-23699-3	P5536 ①	P3899 ①	P8130	RJF87	

① Drill new mounting holes.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						
		TRUETONE PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Horiz. Output Trans.	12E-23939	FB457 *	HVO-56 *		X136 *	HO-251 *	FLY-60 *	D-71 *
T3	Vert. Output Trans.	13E-23736	21S04	A-3037		V3J3	FLY-80 *	A-6133	26053
T4A	Yoke(70°)Horiz.(9MH)	30I-24553-1	DF501 ②	MDF70 ②	23271	Y70F08	DY-8A ②	Y-5 ② ③	Y-13-1 ②
B	Vert.(44MH)	16M-24403 ④	③	③	20626 ② ③	③ ②	③	③	③

① Includes resistors R83 and R85.
② Use original horizontal damping network.
③ Requires centering device.
④ Yoke rear cover and centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
8	8	8	8	8	8	8	8
6	6	6	6	6	6	6	6
3	3	3		3	3	3	3
2	2	2	2	2	2	2	2

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	6400Ω	3-4Ω	13C-23704	22H18	A-3036	A-3878	34S60	S-7X	

SPEAKER

ITEM No.	RATINGS				REPLACEMENT DATA			NOTES
	SIZE	FIELD	V C TAP		TRUETONE PART No.	QUAM PART No.	RCA TYPE No	
SP1	5 1/4"	PM	3-4Ω		18A-2741	52A1	21T51	

COILS (RF-IF)

ITEM No.	USE	TRUETONE PART No.	NOTES
L1	Ant. Matching Transformer	105G-25235	
L2	Ant. Matching Transformer	105G-25235	
L3	IF Trap	105G-25261	
L4A	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-1	Channel 2
B	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-2	Channel 3
C	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-3	Channel 4
D	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-4	Channel 5
E	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-5	Channel 6
F	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-6	Channel 8

ITEM No.	USE	TRUETONE PART No.	NOTES
L4F	Ant., RF, Mixer Grid, Osc. Coils	105-25260-7	Channel 7
G	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-8	Channel 8
H	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-9	Channel 9
I	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-10	Channel 10
J	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-11	Channel 11
K	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-12	Channel 12
L	Ant., RF, Mixer Grid, Osc. Coils	105G-25260-13	Channel 13

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L5	RF Coil	0Ω		105S-25237				
L6	1st. Video IF	9Ω		105S-25238				
L7	2S.2SAC Trap			13M-25498				Not used in some versions
L8	2nd. Video IF	.1Ω		30I-23839				
L9	3rd. Video IF	.2Ω		30I-24043				
L10	RF Choke	2.5Ω		30I-20265	19-3036	TV-180	6178	3S Microberries
L11	4th. Video IF	.3Ω	.3Ω	13A-23087				
L12	Series Peaking Coil	3.1Ω		16A-22923	19-6022		6152	22 Microberries
L13	Series Peaking Coil	3.1Ω		16A-22923	19-6022		6152	22 Microberries
L14	Shunt Peaking Coil	34Ω		16A-19365	19-6400		6136	470 Microberries
L15A	4.5MC Trap	1.6Ω						
B	1st. Det. IF Coil	9Ω		30I-23739				
L16	Series Peaking Coil	7.5Ω		16A-2391	19-3300		6151	30S Microberries
L17	Shunt Peaking Coil	7.5Ω		16A-20970	19-3250	TV-185	6130	27O Microberries
L18	Series Peaking Coil	2.5Ω		16A-24090	19-1005		4612	11 Microberries
L19	4.5MC Trap	.3Ω	.3Ω	16A-2644				
L20	2nd. Sound IF			30I-23873				
L21	Loudspeaker Coil	4.5Ω		30I-23737			1480	
L22	RF Choke	1.6Ω		16A-2701	19-1005		4612	8 Microberries

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	
L23	83Ω		13E-24440			6313			Tapped ②600 - Horiz. Osc. Horiz Stabilizer
L24	38Ω		30I-24473-1			6314			

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L25	.220ADC	37.5Ω	.5HY	16A-23889-1	C5040	C-2994	C-2327	26C41	C-23X

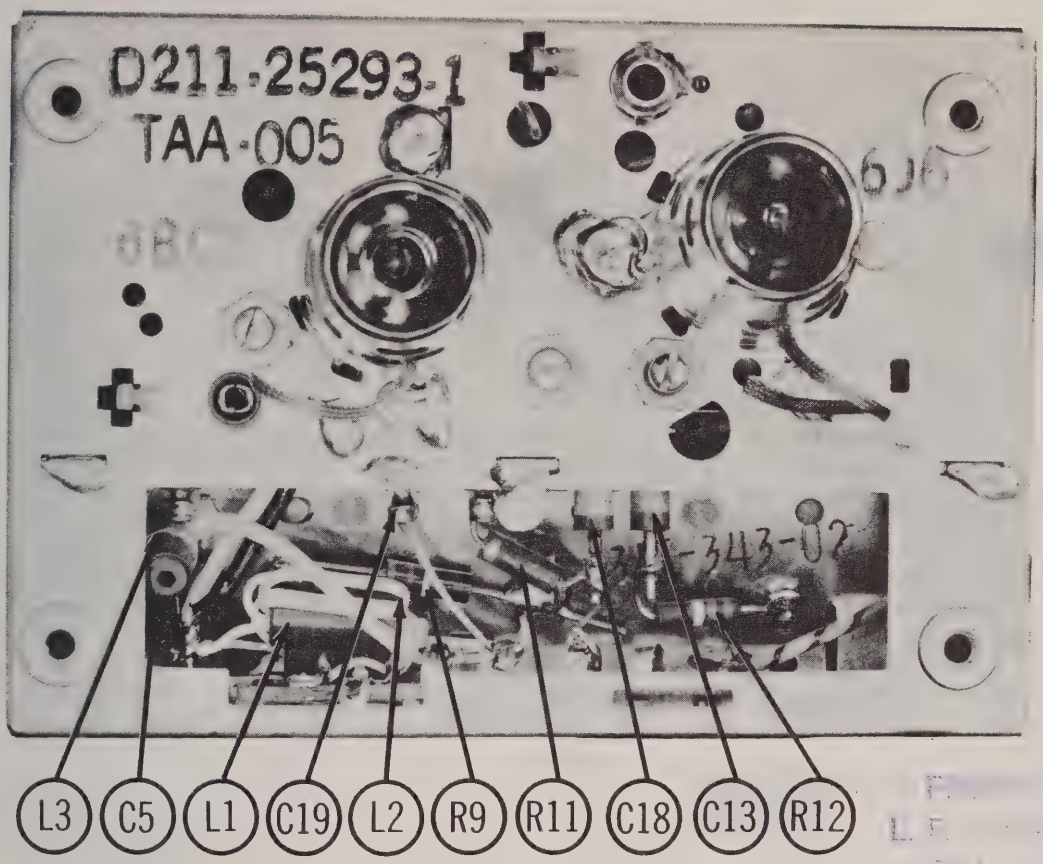
SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	TRUETONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.220ADC	21J-23840	1236A	MR300	6S300	6Q4	250	
M2	.220ADC	21J-23840	1236A	MR300	6S300	6Q4	250	

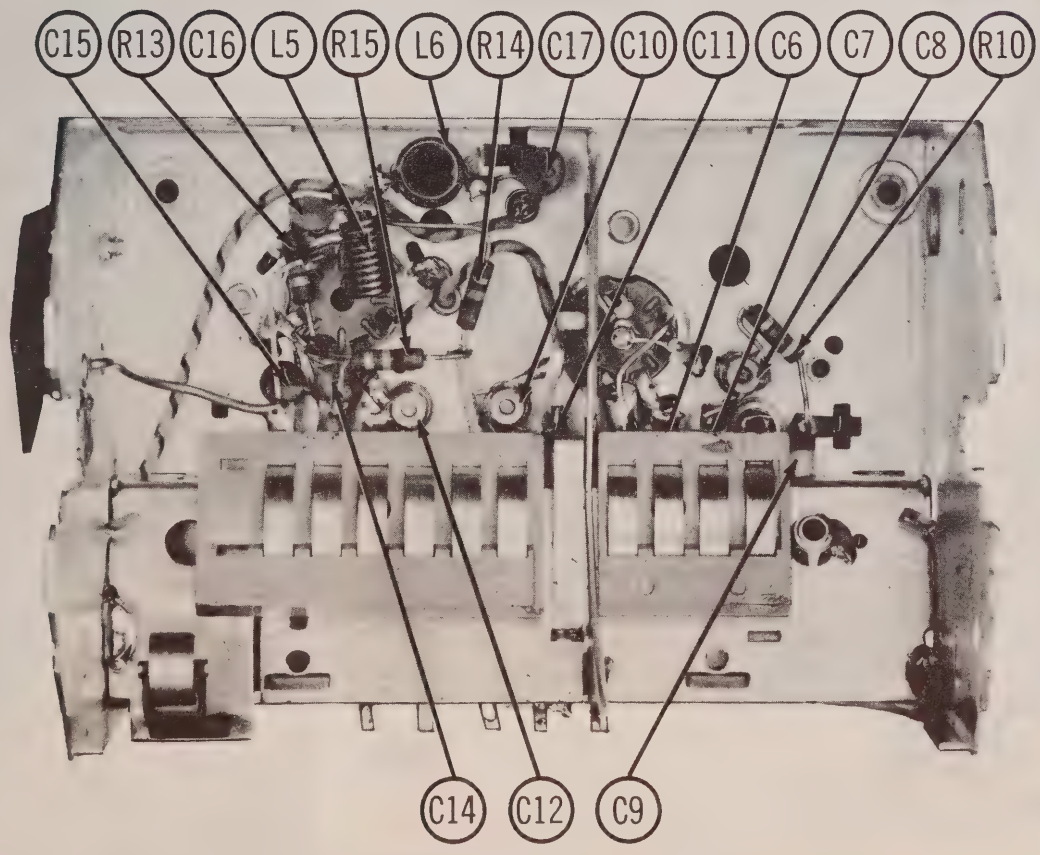
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	Tuner	211-25293-1	VHF (Pentode)
M4	Centering Device	16M-24493	Part of deflection yoke (T4) rear cover
M5	Ion Trap	16M-19706 *	
M6	Clock	201-26760	Assembly
	Crystal	6A-26758	Clock
	Cabinet	200-26740	Assembly - Model 2D-1713A
	Cabinet	200-26740-1	Assembly - Model 2D-1714A
	Safety Glass	30M-25304	
	Mask	25M-25301-A200	
	Knob	5B-24136-A29	Fine tuning
	Knob	5B-24138-A29	Picture
	Knob	5B-25299-A76	VHF Indicator (Model 2D1713A)
	Knob	5B-25299-A188	VHF Indicator (Model 2D1714A)
	Knob	5B-26797-A76	Volume (Model 2D1713A)
	Knob	5B-26797-A188	Volume (Model 2D1714A)
	Knob	5B-23839-A76	Control (3 used) (Model 2D1713A)
	Knob	5B-23839-A29	Control (3 used) (Model 2D1714A)
	Knob	4B-26768	Time Set

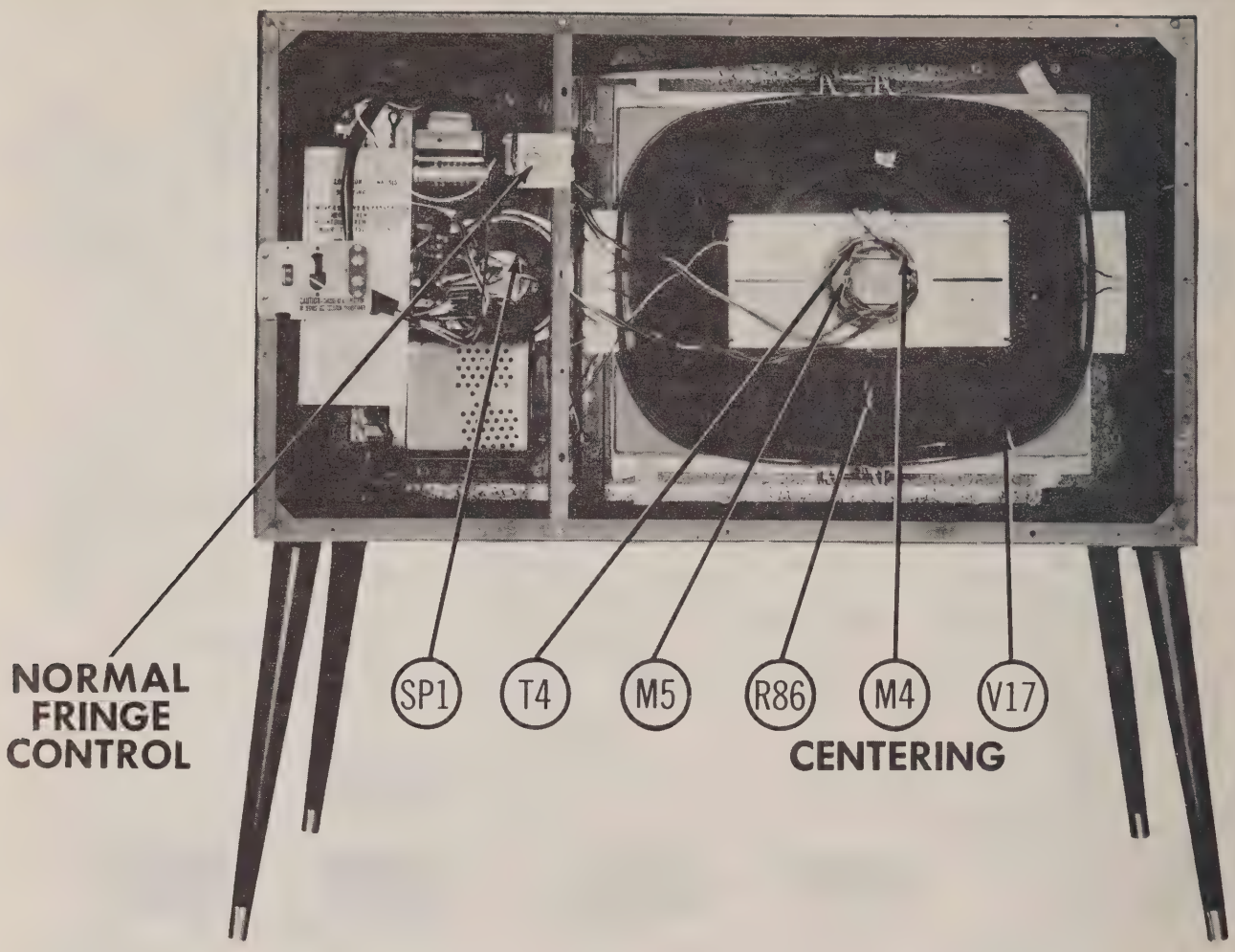
* Alternate part #16M-19705.



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern. Turn the horizontal hold control (R2) to its mid-range position. Connect a short clip lead across (L24). Adjust horizontal oscillator slug (B1) until the picture synchronizes horizontally. Remove clip lead from (L24). Connect the vertical amplifier of the oscilloscope thru a low capacity probe to point Ⓒ. Low side to chassis. Adjust the horizontal stabilizer coil (B2) until a waveform similar to Fig. 5 is obtained. While making this adjustment, keep the picture in sync with the horizontal hold. Remove scope connection. Check range of horizontal hold control (R2). Turn R2 fully counter clockwise, then back clockwise. The picture should fall out of sync at each extreme setting of R2.

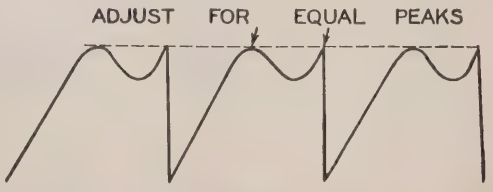


FIG. 5

WEBCOR
MODELS 1654, 1657, 1661

WEBCOR
MODELS 1654, 1657, 1661

WEBCOR
MODELS 1654, 1657, 1661

TRADE NAME	Webcor Models 1654, 1657, 1661
MANUFACTURER	Webcor Inc., 5610 Bloomingdale Ave., Chicago 39, Ill.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Automatic Record Changer
TUBES (Four)	Types 12AX7 AF Amp.-Phase Inv., (2) 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING .26 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE WEBCOR MODEL 141
PHOTOFACT SET 321 - FOLDER 13.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

WEBCOR MODEL 1654

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	35C5	
V3	Output	35C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA WEBCOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	30P250	PRS150V8040	BBRT84215	TCT3117	TDLT-7	FMT-339	TVA-3455
B	60	150		20					
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA WEBCOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	400	30P042	BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C3	2000		30P251	BPD-002	DD-202	K072	801-002	DC522	5HK-D2	
C4	.05	400	30P042	BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C5	2200		30P137	SI2200	D6-222	TP57	GP2-333-222	UC-5222	5HK-D22	
C6	.05	400	30P042	BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C7	.05	400	30P042	BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C8	.047	400	30P154	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WEBCOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	1/2	31P103					Bass (Panel)
B	2Meg	1/2	Not Req.					Volume & Switch (Rear)-

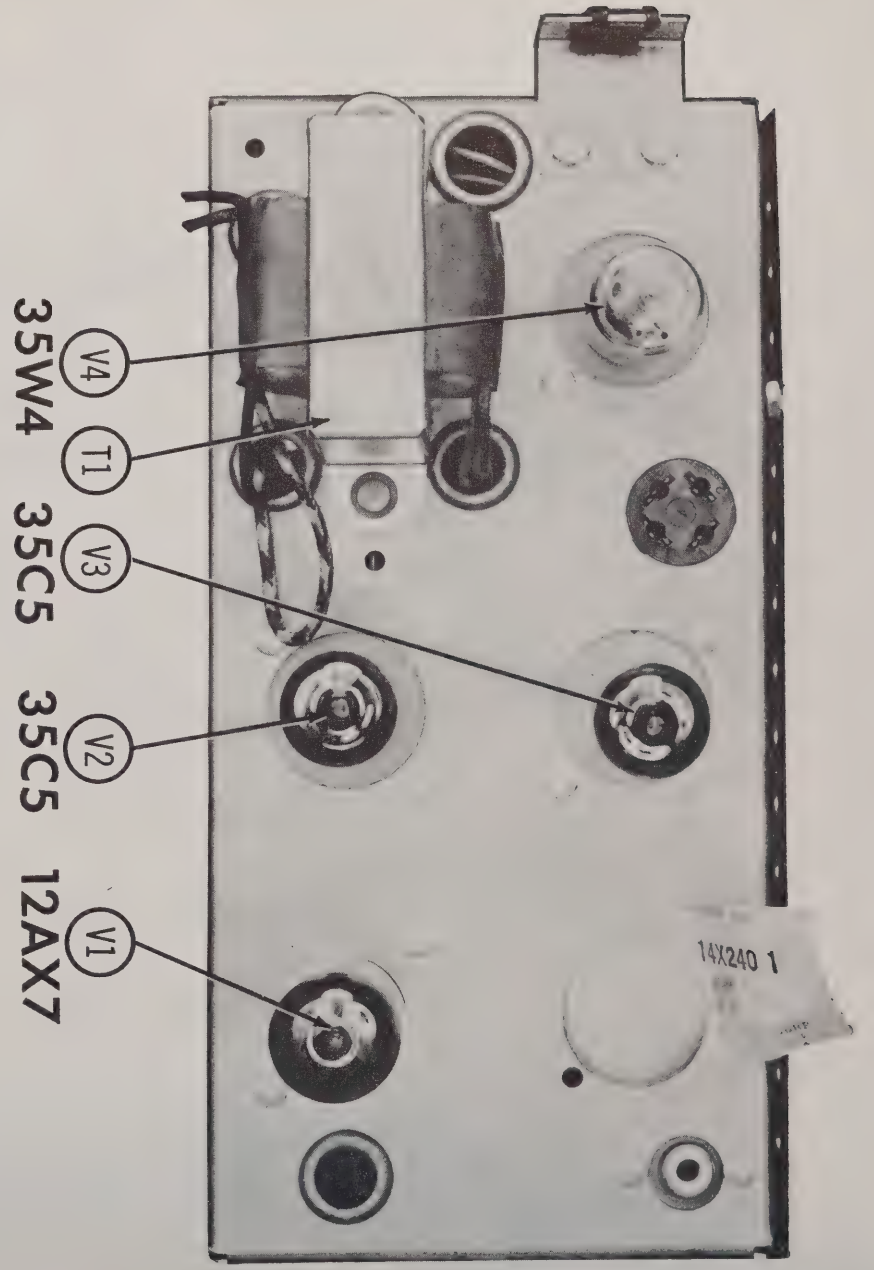
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA WEBCOR PART No.	IRC PART No.	NOTES
R2	6.8Meg		29S6852	BTS-6.8Meg	
R3	220K		29M2242	BTS-220K	
R4	820Ω		29M8212	BTS-820	
R5	220K		29M2242	BTS-220K	
R6	2700Ω		29M2722	BTS-2700	
R7	470K		29M4742	BTS-470K	
R8	22K		29M2232	BTS-22K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA WEBCOR PART No.	IRC PART No.	NOTES
R9	470K		29M4742	BTS-470K	
R10	120Ω	2	29M1214	BTB-120	
R11	22K		29M2232	BTS-22K	
R12	2200Ω	1	29M2223	BTA-2200	
R13	10K		29M1032	BTS-10K	
R14	27Ω		29M2702	BTS-27	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	WEBCOR PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	4300Ω	3-4Ω	67P051-1						

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	WEBCOR PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6"	PM	3-4Ω	76P030	6A1	229S1	① Alternate Speaker.
SP2	3½"	PM	18Ω	76P046	3A07Z18		
	6"	PM	3-4Ω	76P031 ①	6A1	229S1	

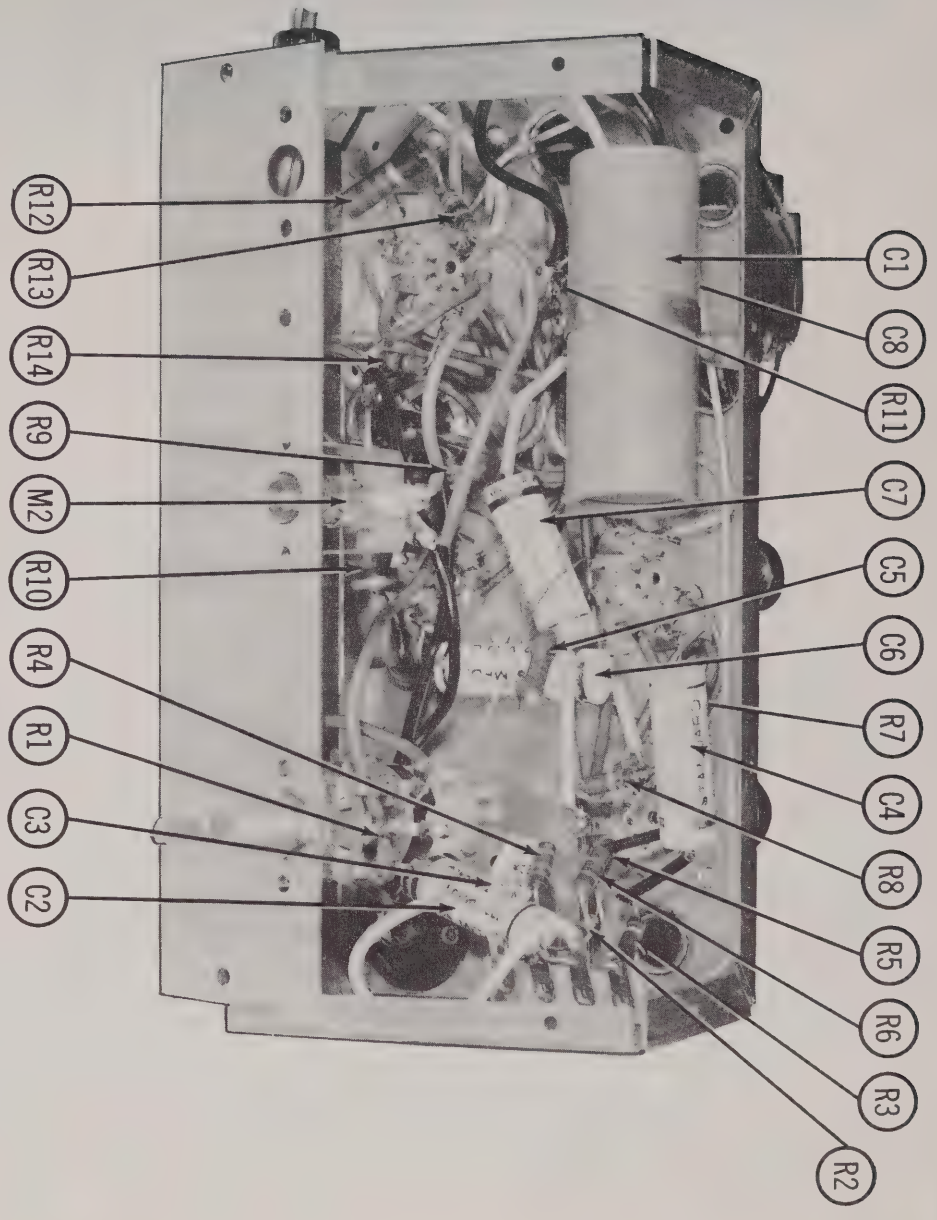
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	WEBCOR PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1				76		

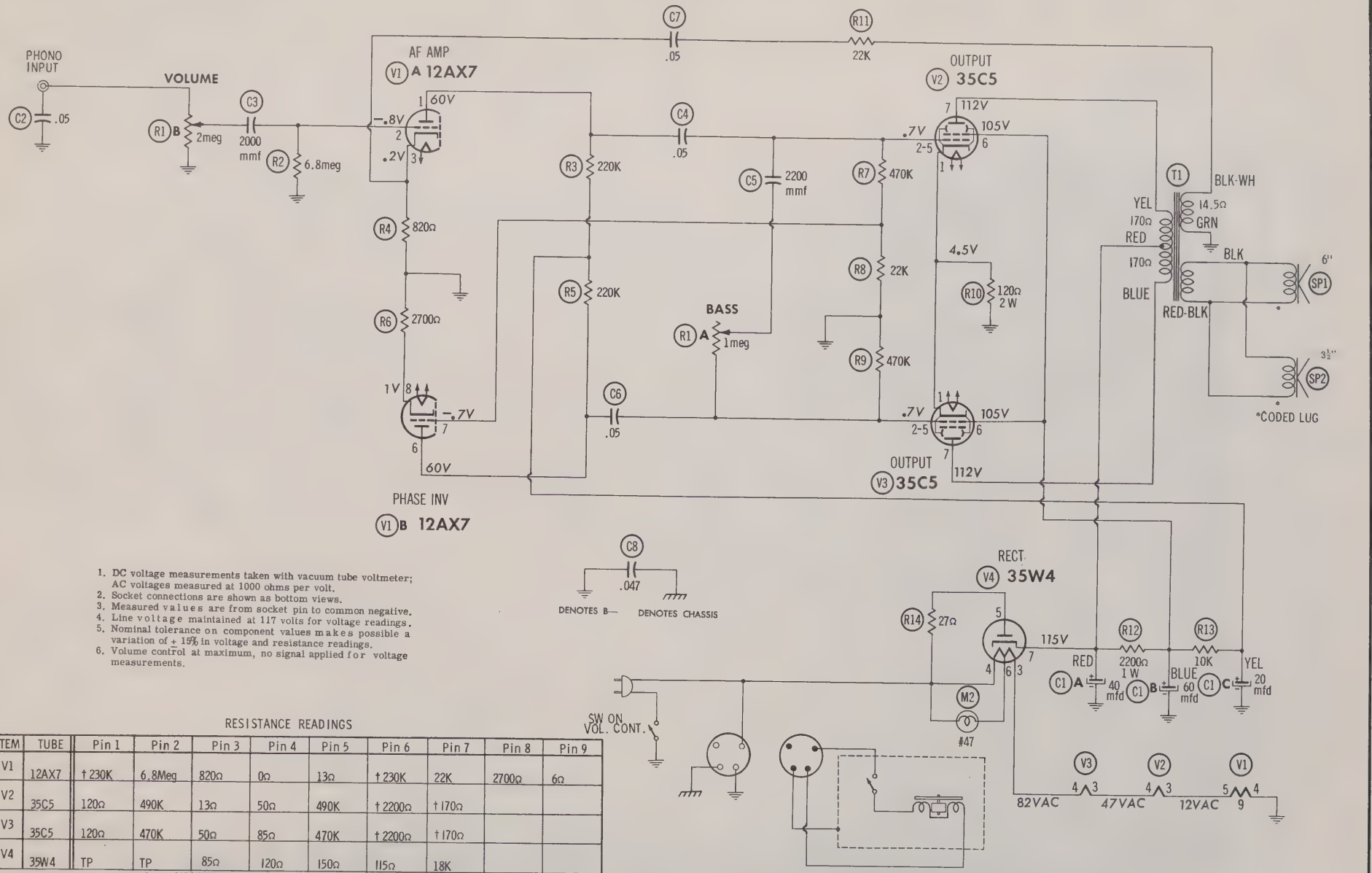
MISCELLANEOUS

ITEM No.	PART NAME	WEBCOR PART No.	NOTES
M2	Pilot Light		#47
	Case	80X133-2	Tan - Model 1654.
	Case	80X133-1	Ebony - Model 1654.
	Cabinet	80X152-1	Mahogany - Models 1657, 1661.
	Cabinet	80X152-2	Blond - Models 1657, 1661.
	Handle	39P049-5	Tan - Model 1654.
	Handle	39P049-1	Ebony - Model 1654.
	Knob	39P142-3LS	On-Off-Volume (Tan) Model 1654.
	Knob	39P142-3T	On-Off-Volume (Ebony) Model 1654.
	Knob	39P142-1BE	On-Off-Volume - Models 1657, 1661.
	Knob	39P141-LS	Tone (Tan) Model 1654.
	Knob	39P141-T	Tone (Ebony) Model 1654.
	Knob	39P142-2BE	Tone - Models 1657, 1661.

CHASSIS—BOTTOM VIEW



WEBCOR MODEL 1654



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 230K	6.8Meg	820Ω	0Ω	13Ω	† 230K	22K	2700Ω	6Ω
V2	35C5	120Ω	490K	13Ω	50Ω	490K	† 2200Ω	† 170Ω		
V3	35C5	120Ω	470K	50Ω	85Ω	470K	† 2200Ω	† 170Ω		
V4	35W4	TP	TP	85Ω	120Ω	150Ω	115Ω	18K		

† MEASURED FROM PIN 7 OF V4.
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

WESTINGHOUSE MODELS H-557P4, H-558P4, H-559P4, H-598P4, H-599P4 (Ch. V-2271-1)

WESTINGHOUSE MODELS H-557P4, H-558P4, H-559P4, H-598P4, H-599P4 (Ch. V-2271-1)

WESTINGHOUSE MODELS H-557P4, H-558P4, H-559P4, H-598P4, H-599P4 (Ch. V-2271-1)

TRADE NAME	Westinghouse Models H-557P4, H-558P4, H-559P4, H-598P4, H-599P4 (Ch. V-2271-1)
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	Three Power Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det-AVC-AF Amp., 3V4 Output
POWER SUPPLY	105-120 Volts AC-DC (or) 1. 5 Volts "A" Supply & 67. 5 Volts "B" Supply
RATING	. 12 Amp. @ 117 Volts AC (or) 250MA @ 1. 5 Volts DC & 10MA @ 67. 5 Volts DC
TUNING RANGE—BROADCAST	540KC - 1625KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to antenna stator lug on tuning gang. Low side to chassis.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1625KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

WESTINGHOUSE
MODEL H-557P4 (Ch. V-2271-1)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det-AVC-AF Amp.	1U5	
V4	Output	3V4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	218V001M01	PRS150/25V	BBRT5315C25	WT201		FMD-303	R2320*
B	40	150		5030/250				MTH-1525	
C	250	15							

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2A	10000		215V301M01	BPD-2X01	DD2-103	DK082	ED-01	DC511	5HK-2S1	
B	10000						ED-01	DC511		
C3	1500		215V111A52	BPD-0015	DD-152	K071	ED-0015	DC5215	5HK-D15	
C4	3.9		217V013A99							
C5	2200		215V112A22	DI-0022	D6-222	K073	ED-0022	UC-5222	5GA-D22	
C6	10000		215V111A03	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C7	.047	400	210V014A73	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C8	.047	200	210V004A73	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	270V005M01		A47-500K-S	Q11-133	U50	Volume
B	Shaft		Not Req.		FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.		SWE-20	76-2	US-27	Attach to R1A

RESISTORS

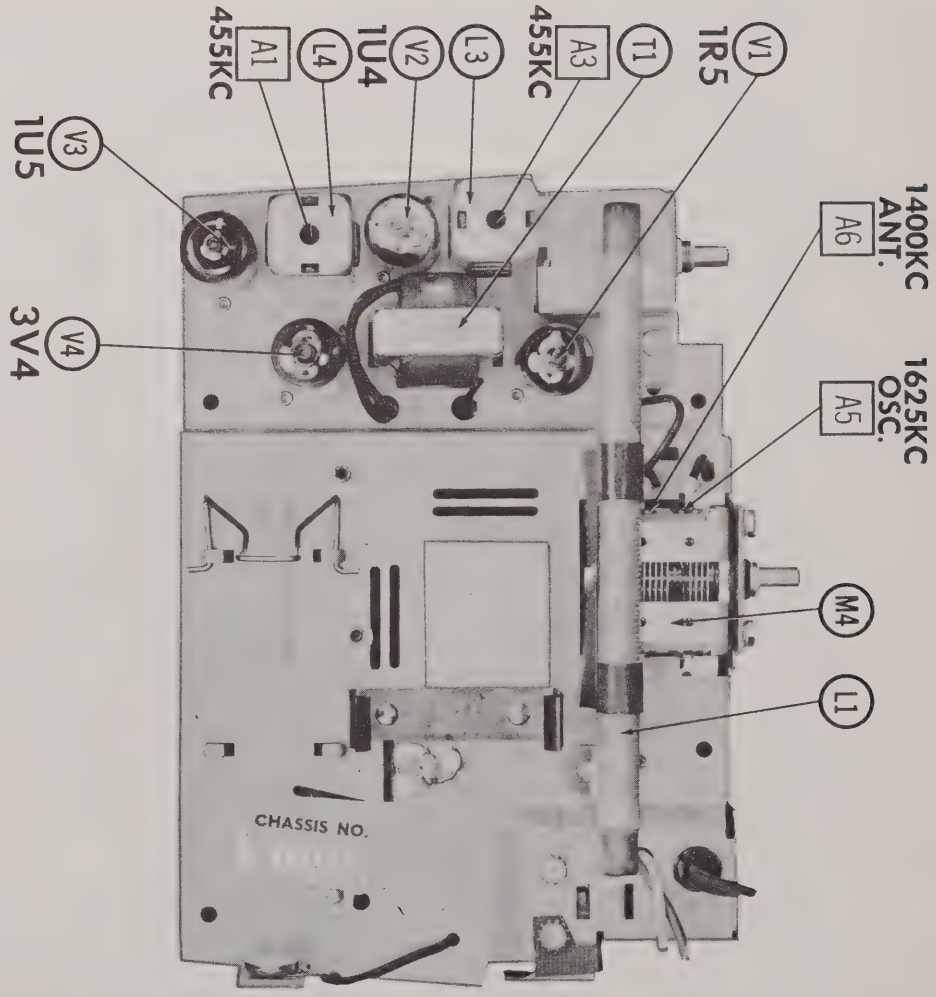
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Westinghouse PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	100K		250V231A04	BTS-100K	
R3	22K		250V232A23	BTS-22K	
R4	4.7Meg		250V234A75	BTS-4.7Meg	
R5	3.3Meg		250V233A35	BTS-3.3Meg	
R6	10Meg		250V231A06	BTS-10Meg	
R7	4.7Meg		250V234A75	BTS-4.7Meg	
R8	1Meg		250V231A05	BTS-1Meg	
R9	10Meg		250V231A06	BTS-10Meg	
R10	3.3Meg		250V233A35	BTS-3.3Meg	
R11	390Ω		250V223A91	BTS-390	
R12	1000Ω		250V231A02	BTS-1000	
R13	2000Ω	10	251V012M01	PW10-2000	
R14	820Ω		250V228A21	BTS-820	
R15	150Ω	5	V-6067-16	PW7-150	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	10K	3-4Ω	430V004M01						

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	RCA TYPE No.	
SP1	3½"	PM	3-4Ω	V-570V002M01	3A07		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Westinghouse PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	310V004M01				
L2	Osc. Coil	230V003M01				262 Microhenries
L3	Input IF	V-11925-1				
L4	Output IF	V-11925-1				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA	
K1	Audio Coupling, RF Bypass Net.	2000MMF, 150MMF, 5000MMF, 100MMF, 5000MMF	V-9703-1	Aerovox Sprague	PA632 34C4

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	Westinghouse PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.057A	295V002M01	1386	RS065Q	6S65	8J1	65	

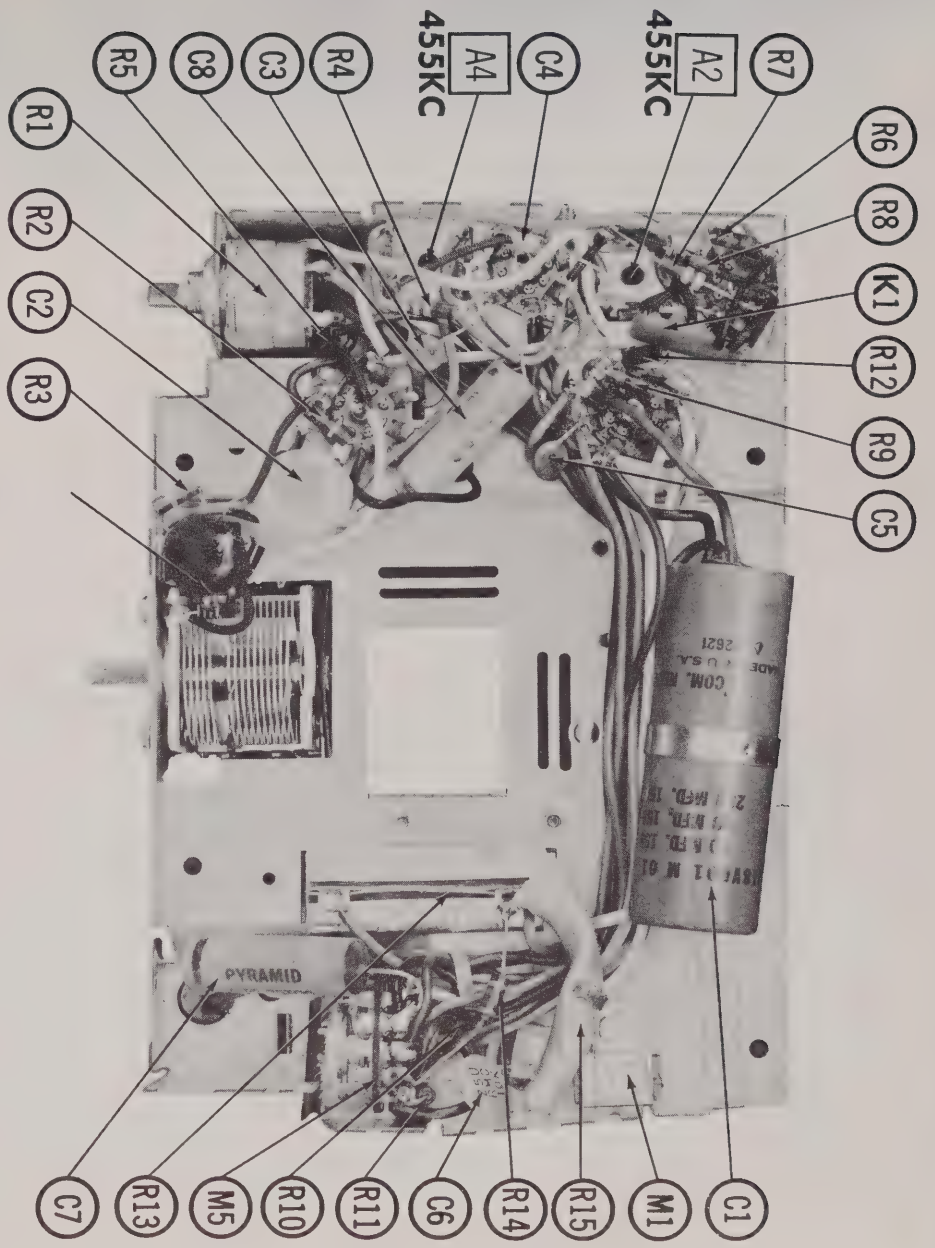
BATTERIES

ITEM No.	VOLTAGE	Westinghouse PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2 M3	1.5V "A" 67.5V "B"		964	477		21R	P45		

MISCELLANEOUS

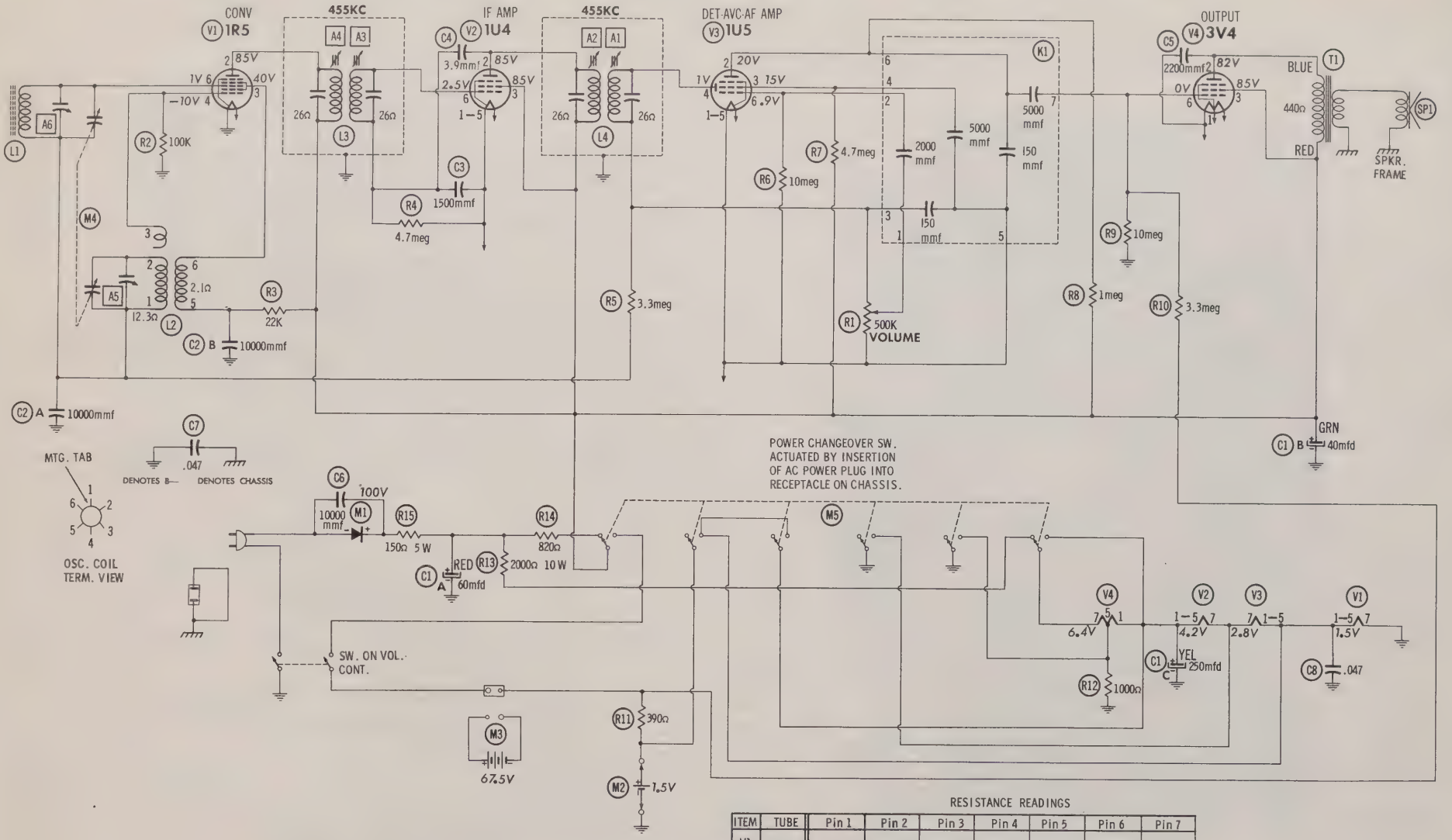
ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M4	Tuning Cap.	330V002M01	2 Gang (17-215MMF, 10-90MMF)
M5	Switch	756V002A01	Power Changeover (6 Pole-2 Position; Rotary, Wafer Type)
	Cabinet	513V002M01	Less Metal Grille, Model H-557P4.
	Cabinet	513V002M02	Less Metal Grille, Model H-558P4.
	Cabinet	513V002M03	Less Metal Grille, Model H-559P4.
	Cabinet	513V009M01	Model H-598P4.
	Cabinet	513V009M02	Model H-599P4.
	Handle Ass'y.	559V006M01	Includes Bracket, Models H-557P4, H-558P4, H-598P4, H-599P4.
	Handle Ass'y.	559V006M02	Includes Bracket, Model H-559P4.
	Knob	550V004M01	On-Off-Volume, Model H-557P4.
	Knob	550V004M02	On-Off-Volume, Model H-558P4.
	Knob	550V004M03	On-Off-Volume, Model H-559P4.
	Knob	550V004M04	On-Off-Volume, Model H-598P4.
	Knob	550V004M05	On-Off-Volume, Model H-599P4.
	Knob	550V013M09	Tuning Dial, Model H-598P4.
	Knob	550V013M10	Tuning Dial, Model H-599P4.
	Knob	550V013M02	Tuning Dial, Models H-557P4, H-558P4.
	Knob	550V013M03	Tuning Dial, Model H-559P4.

CHASSIS—BOTTOM VIEW



WESTINGHOUSE
MODEL H-557P4 (Ch. V-2271-1)

WESTINGHOUSE
MODEL H-557P4 (Ch. V-2271-1)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†1000Ω	†23K	100K	•	3.8Meg	•
V2	1U4	•	†1000Ω	†1000Ω	TP	•	4.7Meg	•
V3	1U5	•	†1Meg	†4.7Meg	500K	TP	10Meg	•
V4	3V4	•	†1400Ω	†100Ω	TP	•	10Meg	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM OUTPUT OF M1.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ZENITH MODELS HFY10L, Y, HFY12E, R (Ch. 3Y04)

ZENITH MODELS HFY10L, Y, HFY12E, R (Ch. 3Y04)

TRADE NAME	Zenith Models HFY10L, HFY10Y, HFY12E, HFY12R (Ch. 3Y04)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AX7 AF Amp.-Phase Inv., (2) 50C5 Output
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING .35 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M MODEL 1200 PHOTOFACT SET 290 FOLDER 11 OR RECORD CHANGER MANUAL CM-7.

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ZENITH
MODEL HFY10L (Ch. 3Y04)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inv.	12AX7	
V2	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V3	Output	50C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■100	150	22-2864	AFH3-13	CO120	FP116	TMT-13	D-086	TVL-3442
B	▲40	150				TC48			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	200	22-2792	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C3	1500		22-12	DI-0015	DD-152	G071	811-152	UC-5215	5GA-D15	
C4	33		22-2863		TCA-33		N330K-330			
C5	1000		22-17	DI-001	DD-102	G069	811-102	UC-521	5GA-D1	
C6	10000		22-3	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C7	.022	200	22-2807	BPD-02	DF-203	CUB4S22	817-02	PT4122	2TM-S22	
C8	.47	200	22-2767	P288N-47		CUB2P47		PT4047	2TM-P47	
C9	10000		22-3	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C10	.00047	400	22-2850	SI470	D6-471	TP46	GP2K-471	UC-5347	5GA-T47	
C11	.0033	600	22-2833	BPD-0033	D6-332	CUB6D33	GP2-333-332	PT6233	6TM-D33	
C12	.022	600	22-2806	BPD-02	DF-203	CUB6S22	817-02	PT6122	6TM-S22	
C13	.1	200	22-2780	P288N-1	DF-104	CUB2P1		PT401	2TM-P1	
C14	.0022	600	22-2839	BPD-0022	D6-222	K073	811-0022	UC-5222	5HK-D22	
C15	10000		22-3	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C16	10000		22-3	BPD-01	DD-103	K082	811-01	DC511	5HK-S1	
C17	.047	200	22-2792	BPD-05	DF-203	CUB2S47		PT4147	2TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3Meg	1/2	63-3638				UT-461	Volume Tap ⓐ 2.5Meg
B	Shaft		Not Req.				Not Req.	Attach to R1A
C	Switch		Not Req.				US-26	Attach to R1A
R2A	20K	1/2	63-3637				UF253R	Bass (Panel)
B	1Meg	1/2	Not Req.				UR16A	Treble (Rear)

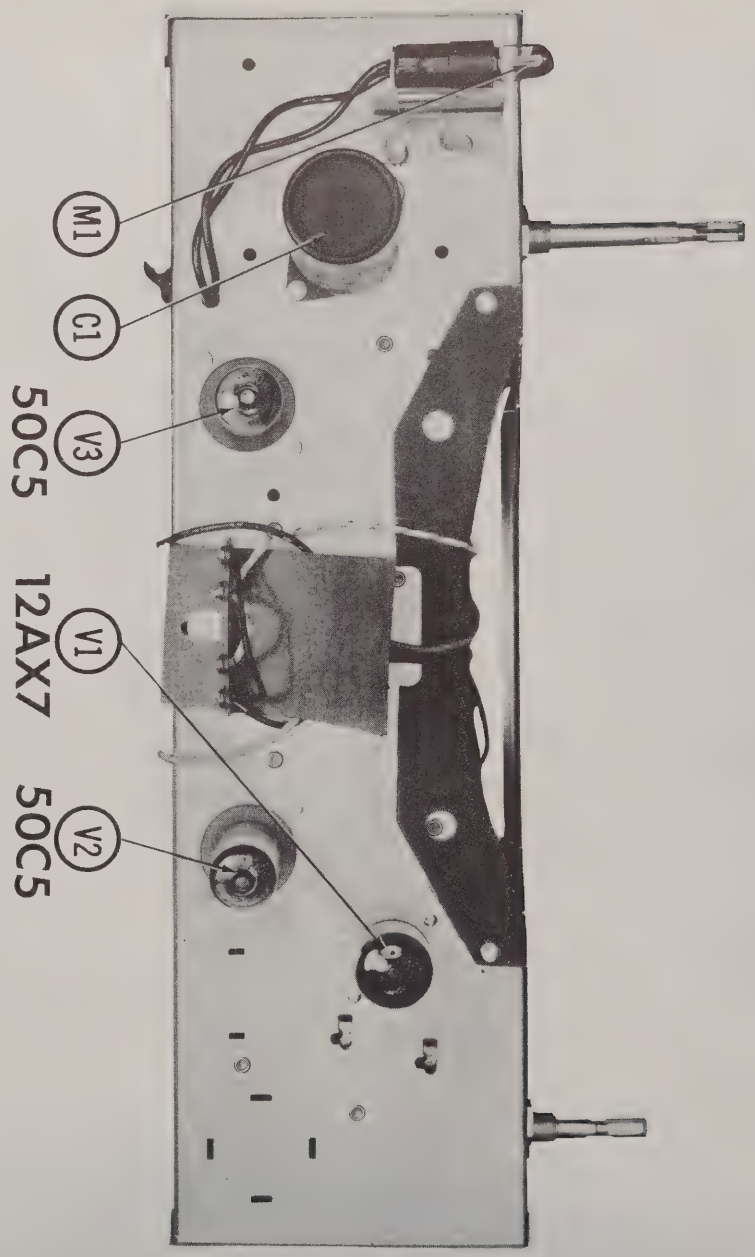
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	NOTES
R3	33K		63-1848	BTS-33K	
R4	330K		63-1890	BTS-330K	
R5	3900Ω		63-1810	BTS-3900	
R6	6.8Meg		63-1947	BTS-6.8Meg	
R7	220K		63-1884	BTS-220K	
R8	220Ω		63-1757	BTS-220	
R9	2200Ω		63-1799	BTS-2200	
R10	220Ω		63-1757	BTS-220	
R11	10K		63-1828	BTS-10K	
R12	1000Ω		63-1785	BTS-1000	
R13	5600Ω		63-1817	BTS-5600	
R14	220K		63-1883	BTS-220K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ZENITH PART No.	IRC PART No.	NOTES
R15	3300Ω		63-1806	BTS-3300	
R16	220K		63-1883	BTS-220K	
R17	270K		63-1887	BTS-270K	
R18	220K		63-1884	BTS-220K	
R19	82Ω	1	63-3636	BTA-82	
R20	47K		63-1856	BTS-47K	
R21	47K		63-1856	BTS-47K	
R22	100K		63-1870	BTS-100K	
R23	1000Ω	1	63-965	BTA-1000	
R24	33Ω	2	63-3643		
R25	22Ω	1	63-3197	BTA-22	
R26	100K		63-1870	BTS-100K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3750Ω	3-4Ω	95-1481						

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	RCA TYPE No.	
SP1	8"	PM	3-4Ω	49-795	8A21	208S2	① Electrostatic Speaker
SP2				S-23829 ①			
SP3				S-23829 ①			

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.097A	212-18	1005A	RS150	6S150	5P1	150	

PHONO CARTRIDGE

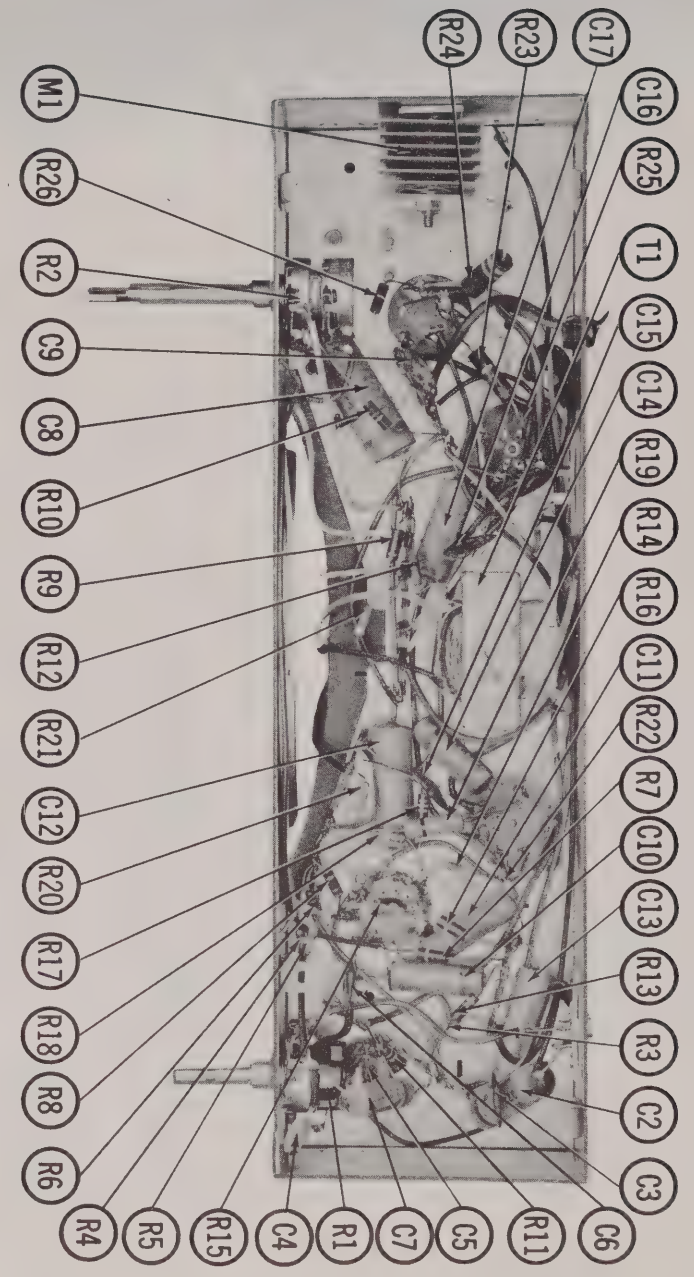
ITEM No.	REPLACEMENT DATA					REMARKS
	ZENITH PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	142-80	*55-T	GD-J	56	PT-2	*Remove original mounting mechanism.

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED.

MISCELLANEOUS

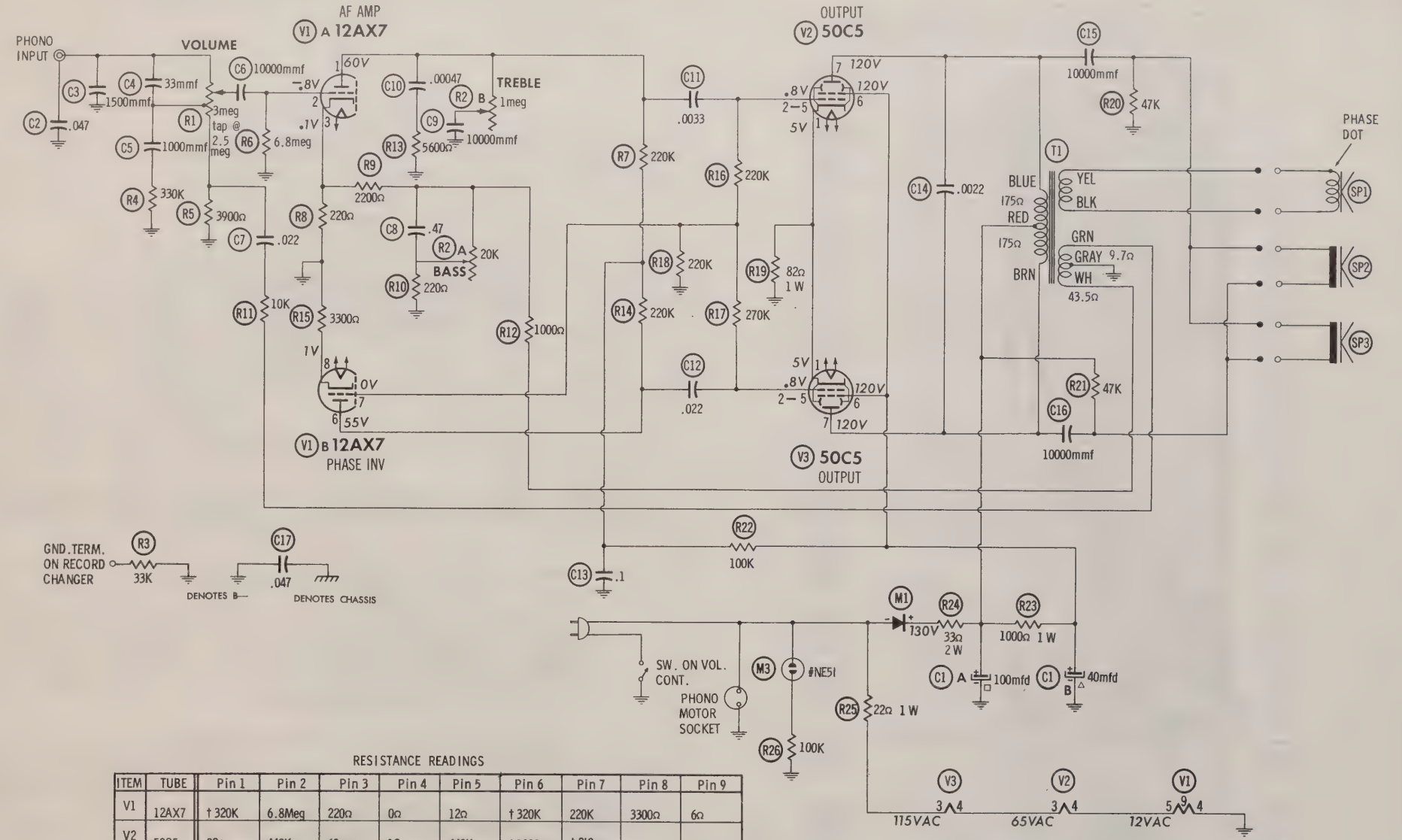
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Pilot Light	100-105	#NE51
	Cabinet	14-1962L	Model HFY10L
	Cabinet	14-1962Y	Model HFY10Y
	Cabinet	14-1969E	Model HFY12E
	Cabinet	14-1969R	Model HFY12R
	Knob	46-1300	Bass & Dummy, Models HFY10L, HFY12R.
	Knob	46-1301	Bass & Dummy, Models HFY10Y, HFY12E.
	Knob	46-1317	On-Off-Volume & Treble, Models HFY10L, HFY12R.
	Knob	46-1318	On-Off-Volume & Treble, Models HFY10Y, HFY12E.

CHASSIS—BOTTOM VIEW



ZENITH
MODEL HFY10L (Ch. 3Y04)

ZENITH
MODEL HFY10L (Ch. 3Y04)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†320K	6.8Meg	220Ω	0Ω	12Ω	†320K	220K	3300Ω	6Ω
V2	50C5	82Ω	440K	60Ω	12Ω	440K	†1000Ω	†210Ω		
V3	50C5	82Ω	490K	110Ω	60Ω	490K	†1000Ω	†210Ω		

† MEASURED FROM OUTPUT OF M1.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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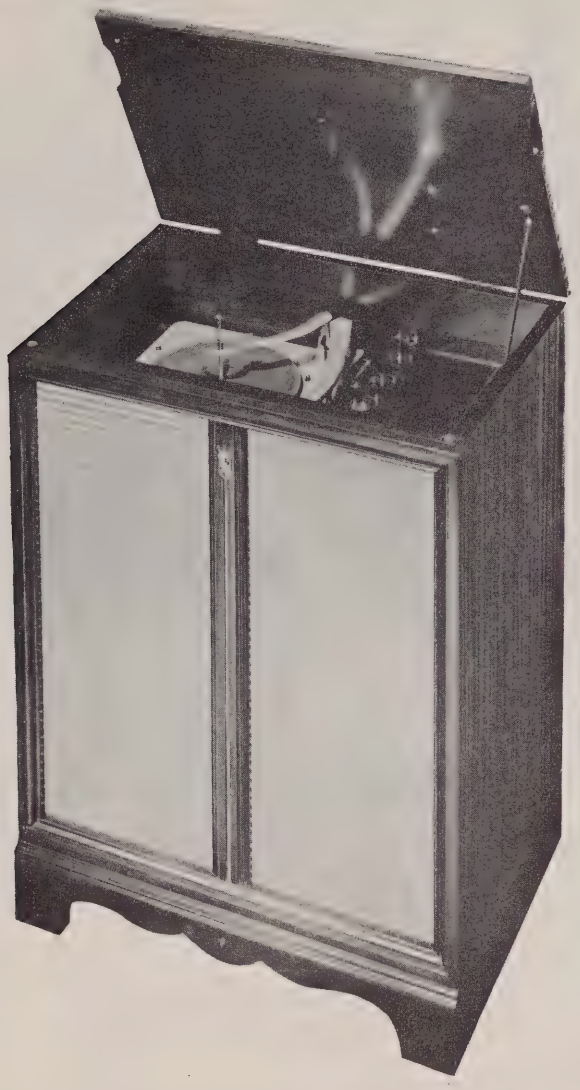
ZENITH MODELS
HFZ18R, HFZ19E (Ch. 5Z21)

ZENITH MODELS
HFZ18R, HFZ19E (Ch. 5Z21)



ZENITH MODELS
HFZ18R, HFZ19E (Ch. 5Z21)

TRADE NAME	Zenith Models HFZ18R, HFZ19E (Ch. 5Z21)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Five)	Types 6J5 Preamplifier, 12AX7 AF Amp. -Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING .65 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE SIMILAR V-M MODEL 1200
PHOTOFACT SET 290 - FOLDER 11 OR RECORD CHANGER MANUAL CM-7.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL HFZ18R (Ch. 5Z21)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamplifier	6J5	
V2	AF Amp. -Phase Inv.	12AX7	
V3	Output	6V6GT	
V4	Output	6V6GT	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450	22-1612	AFH2-57	BO450	FP238	TMD-54	D-235	TVL-2764
B	▲40	450							
C2A	▲20	350	22-2627	AFH4-04	C1030		TMT-92	Q-250	TVL-4621.3
B	■20	350					TD-20-25		
C	▲40	25							

FIXED CAPACITORS

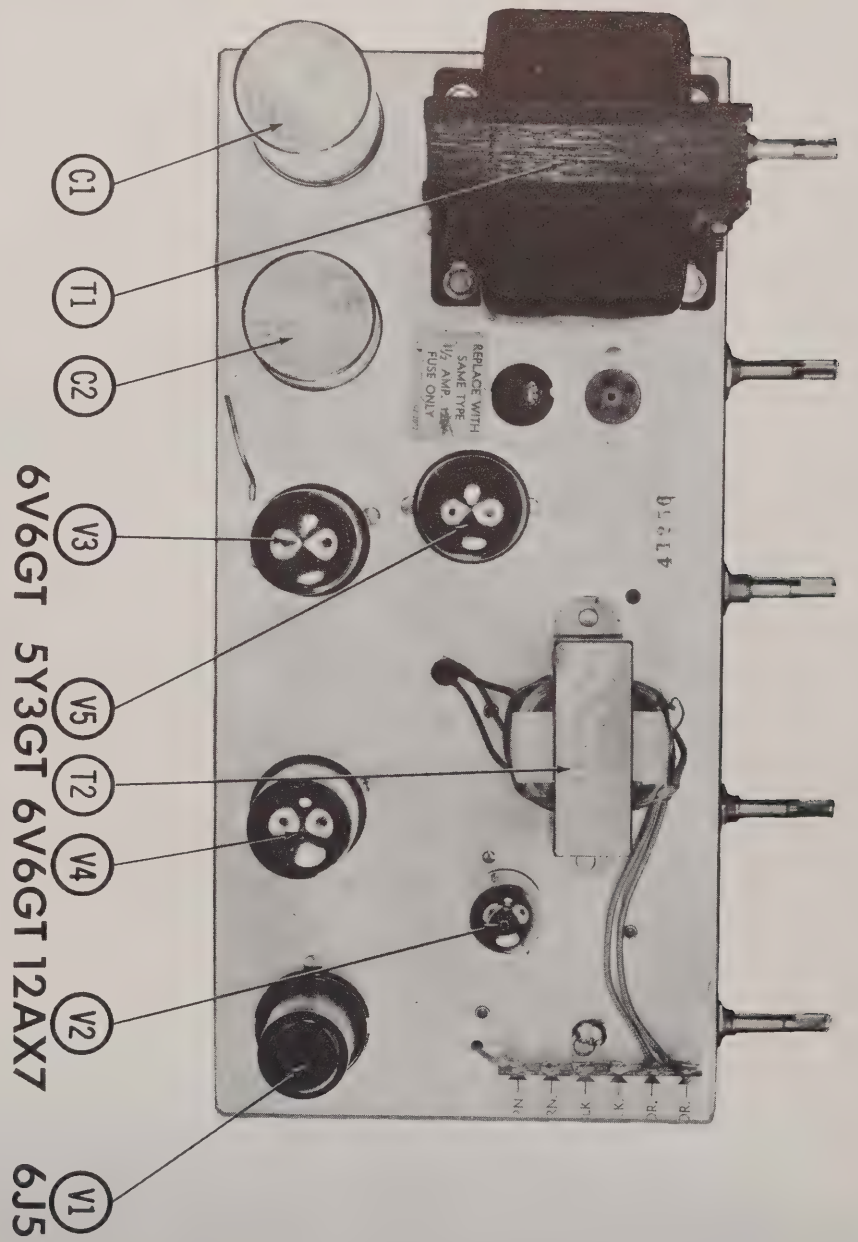
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	1500		22-12	1464-0015	DD-152	1R5D15	ED-1500	MCB456	MS-215	
C4	.01	400	22-2810	BPD-01	D6-103	CUB4S1	GP-10000	PT411	4TM-S1	
C5	150		22-2875	NP0-D150	TCN-150	N046	TC7-150		5TCU-T15	
C6	.022	200	22-2804	BPD-02	DF-203	CUB4S22	ED-02	PT4122	2TM-S22	
C7	1000		22-17	BPD-001	DD-102	K069	ED-001	DC521	5HK-D1	
C8	.047	600	22-2794	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C9	560		22-2310	1464-00056	D6-561	1R5T56	ED-560		MS-356	
C10	.047	600	22-2794	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47	
C11	.047	200	22-2792	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C12	.047	200	22-2792	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C13	.1	600	22-2782	P688N-1	DF-104	CUB6P1		PT601	6TM-P1	
C14	.1	600	22-2782	P688N-1	DF-104	CUB6P1		PT601	6TM-P1	
C15	4700		22-14	1464-0047		1R5D47			MS-247	
C16	4700		22-14	1464-0047		1R5D47			MS-247	
C17	.047	200	22-2792	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47	
C18	10000		22-3	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	63-3656	ABT-78	A47F3-2Meg	Q18-139X	UT-451	Loudness Tap@ 1Meg
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	KB-1	SWE-12	76-1	US-26	Attach to R1A
R2A	50K	½	63-3657	AB-34			U34	Presence
B	Shaft		Not Req.	AK-4			Not Req.	Attach to R2A
R3A	500K	½	63-3654	AB-60	A47-500K-Z	Q13-133	U48	Treble
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R3A
R4A	1Meg	½	63-3655	AB-68	A47-1Meg-S	Q11-137	U54	Bass
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R4A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R5	2.2Meg			BTS-2.2Meg	
R6	1Meg			BTS-1Meg	
R7	47K			BTS-47K	
R8	2200Ω			BTS-2200	
R9	15Meg			BTS-15Meg	
R10	33K			BTS-33K	
R11	33K	1	63-957	BTA-33K	
R12	680Ω			BTS-680	
R13	470K			BTS-470K	
R14	4700Ω			BTS-4700	
R15	220K			BTS-220K	
R16	3300Ω			BTS-3300	
R17	10K			BTS-10K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R18	39K			BTS-39K	
R19	220K			BTS-220K	
R20	220K			BTS-220K	
R21	220K			BTS-220K	
R22	3300Ω			BTS-3300	
R23	270K			BTS-270K	
R24	220Ω	2	63-3158	BTB-220	
R25	4700Ω			BTS-4700	
R26	150K			BTS-150K	
R27	4700Ω			BTS-4700	
R28	120Ω	2	63-2281	BTB-120	
R29	5600Ω	2	63-1193	BTB-5600	
R30	6800Ω			BTS-6800	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .65A	670VCT @ .084A	5VAC @ 2A	6.3VCT @ 1.65A	95-1410	P9310 ①	P-3152 ①	PC-8409 ①	24R02U ①	R-11A ①

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6300Ω	3-4Ω	95-1489						

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	RCA TYPE No.	
SP1	12"	PM	6-8Ω	49-802	12A6	412S7	① Electrostatic Speakers.
SP2	12"	PM	6-8Ω	49-802	12A6	412S7	
SP3				S-23829 ①			
SP4				S-23829 ①			

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ZENITH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1½A 250V	136-32	62-17	31201.5 (3AG-1½A)	342001	AGC 1½	HKP

PHONO CARTRIDGE

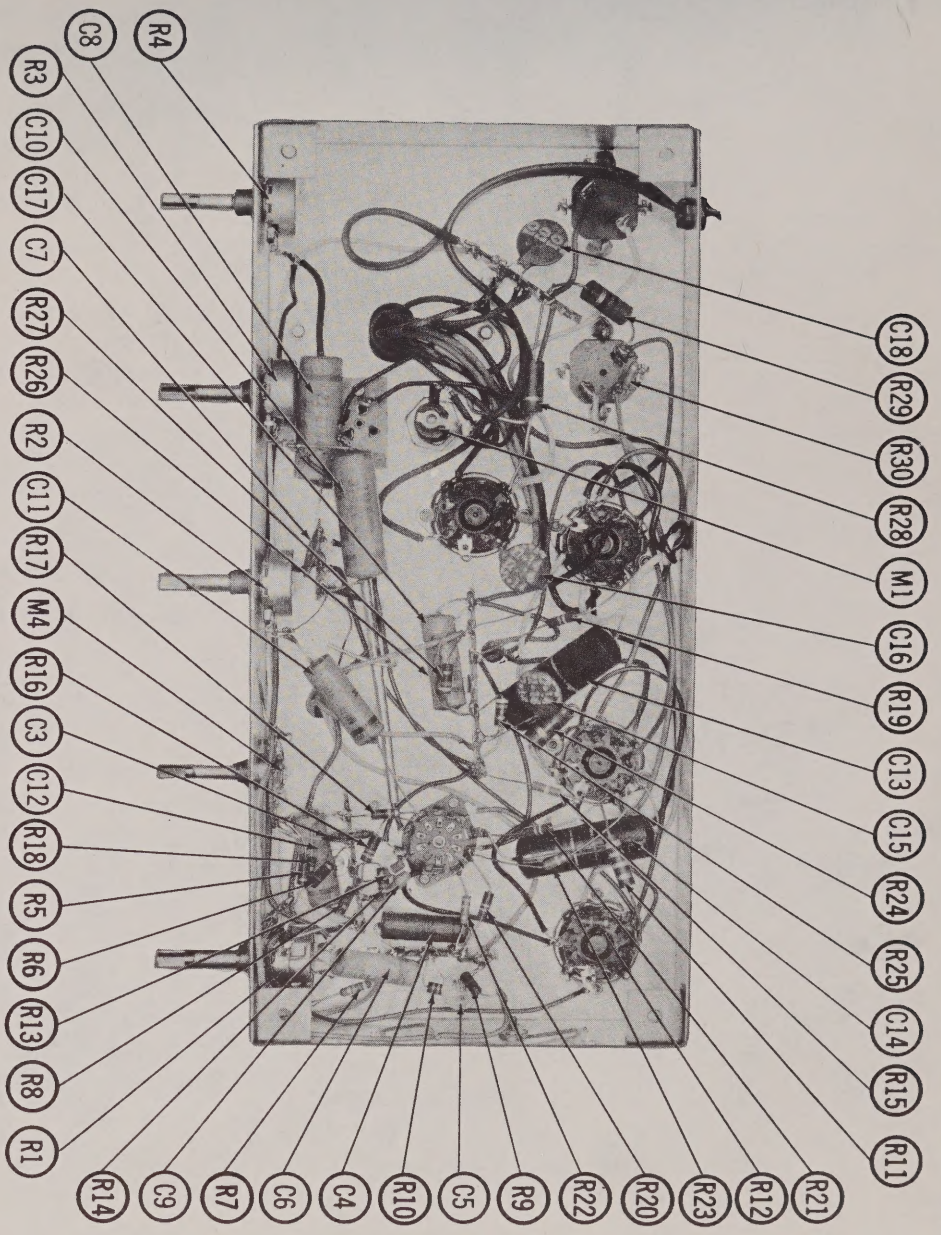
ITEM No.	REPLACEMENT DATA					REMARKS
	ZENITH PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2	142-80	*55-T	GD-J	56		*Remove original turnover mechanism before installing Astatic replacement.

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED.

MISCELLANEOUS

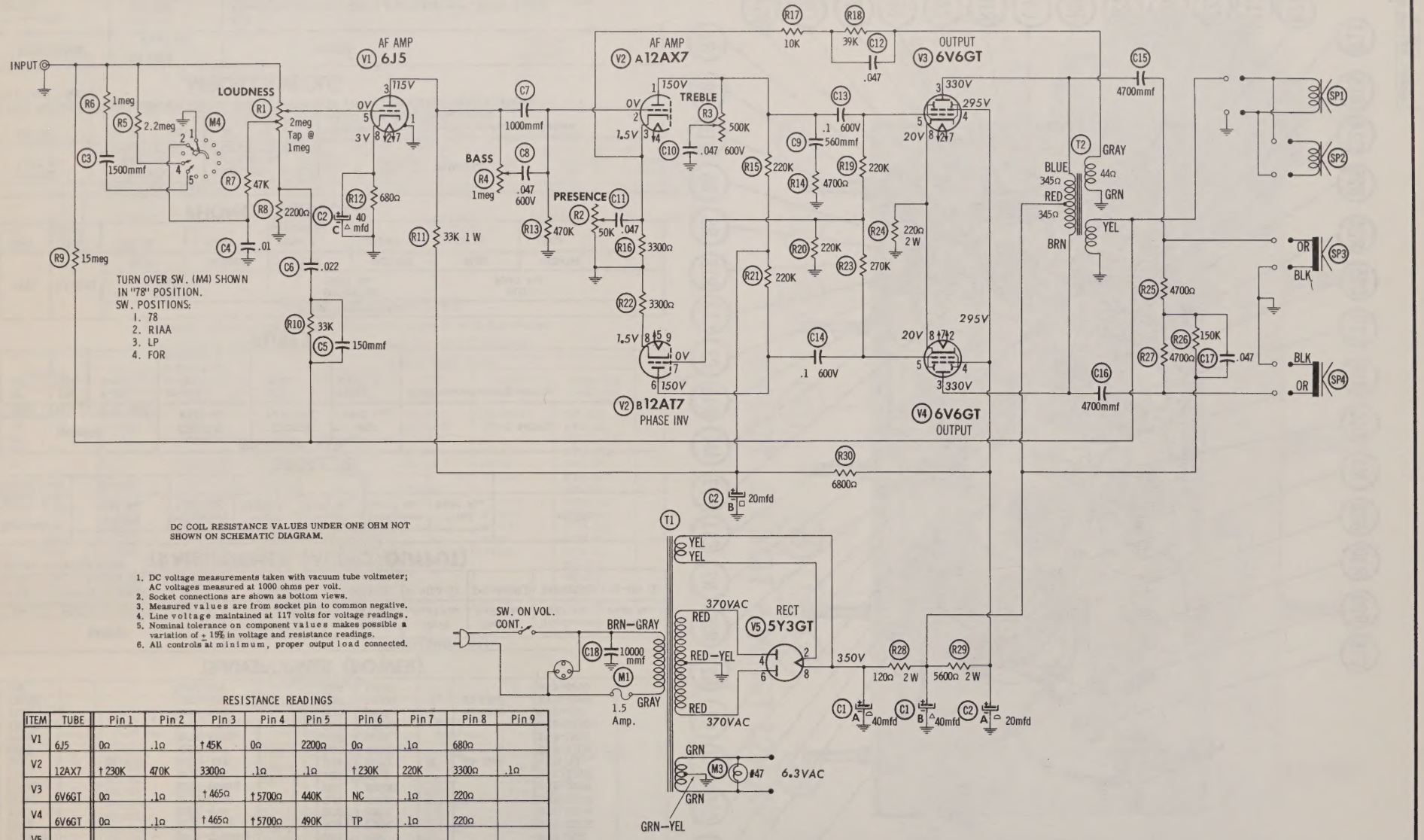
ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Pilot Light	100-67	#47
M4	Switch	85-578	Record Compensator (SP-4 Position; Rotary, Wafer Type)
	Cabinet	14-2009E	Model HFZ19E
	Cabinet	14-2013R	Model HFZ18F
	Knob	46-1020	Control (5 Used) Model HFZ18R
	Knob	46-1357	Control (5 Used) Model HFZ19E

CHASSIS—BOTTOM VIEW



ZENITH MODEL HFZ18R (Ch. 5Z2I)

ZENITH MODEL HFZ18R (Ch. 5Z2I)



DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6J5	0Ω	.1Ω	†45K	0Ω	2200Ω	0Ω	.1Ω	680Ω	
V2	12AX7	†230K	470K	3300Ω	.1Ω	.1Ω	†230K	220K	3300Ω	.1Ω
V3	6V6GT	0Ω	.1Ω	†465Ω	†5700Ω	440K	NC	.1Ω	220Ω	
V4	6V6GT	0Ω	.1Ω	†465Ω	†5700Ω	490K	TP	.1Ω	220Ω	
V5	5Y3GT	NC	18K	NC	145Ω	NC	160Ω	NC	18K	

† MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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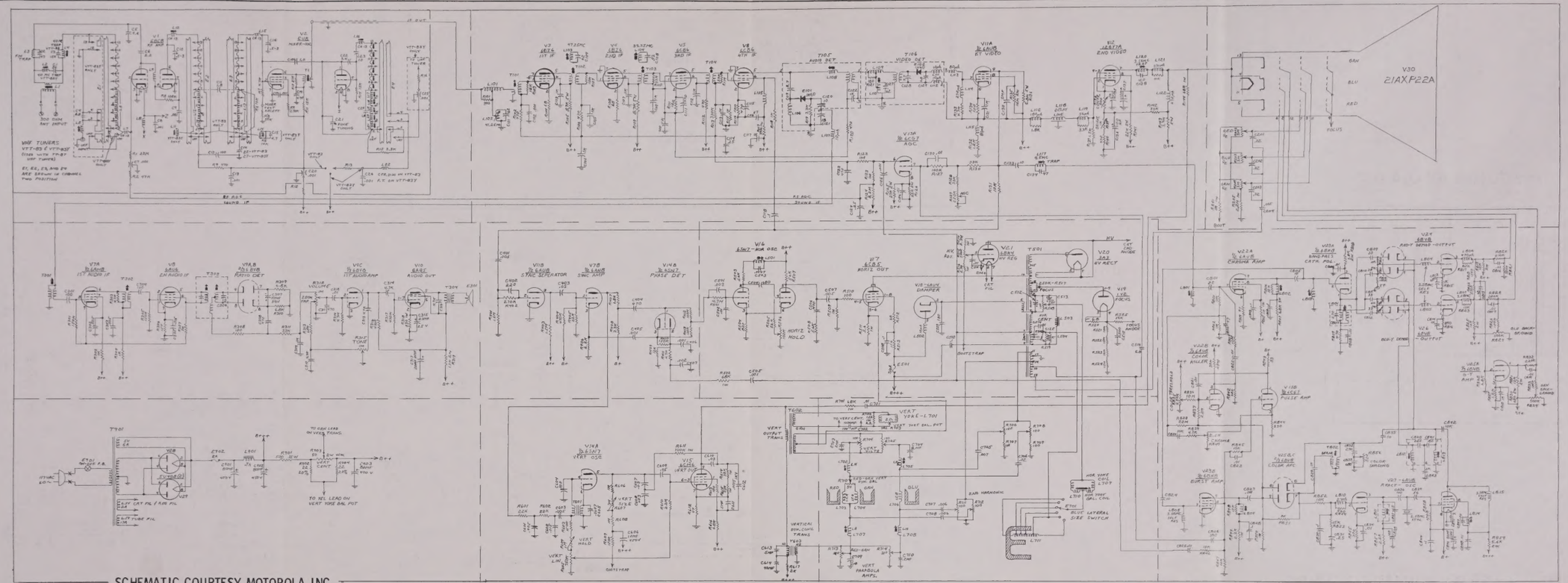
MOTOROLA
MODELS CHASSIS
21CK3 SERIES TS-905
21CT2 SERIES TS-905



SCHEMATIC COURTESY MOTOROLA INC.

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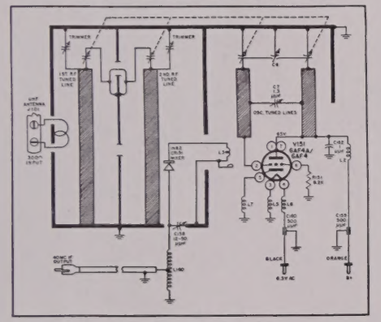
DENVER, COLORADO

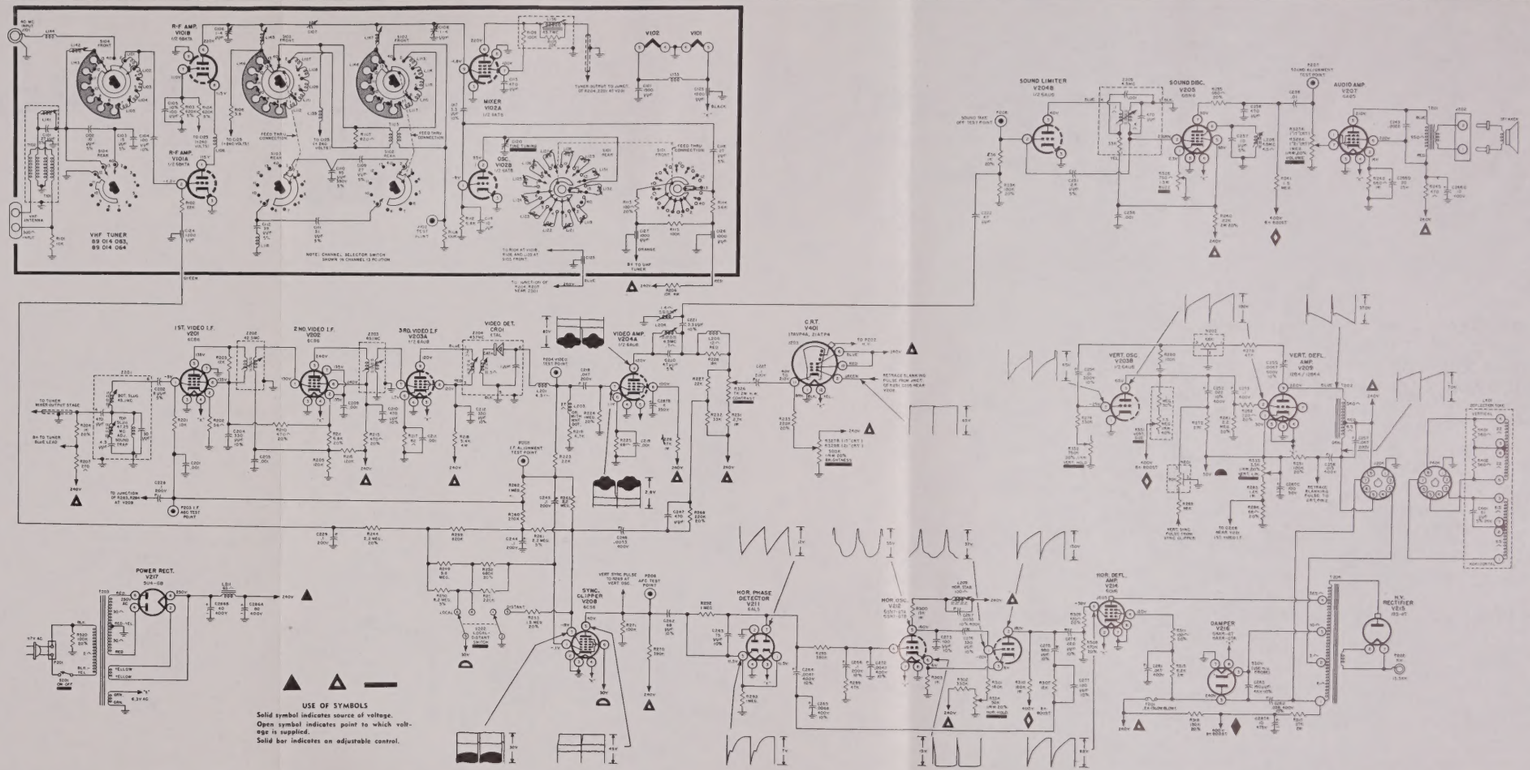
UHF TUNER 89 014 081



TUNER NOTES

1. VHF tuner 89 014 063 is used in 17" models and VHF tuner 89 014 064 is employed in 21" RA-380 models.
2. A UHF/VHF tuner combination consisting of VHF tuner 89 014 063 and UHF tuner 89 014 081 is used in 17" RA-381 models. RA-381 21" models employ VHF tuner 89 014 064 and UHF tuner 89 014 081.

DUMONT
CHASSIS RA-380, RA-381



SCHEMATIC COURTESY DUMONT LABORATORIES INC.

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